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Parasitology and the Practitioner.*

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It is a truism that all parasites of stock are acquired either from their own wild ancestors or from the native wild animals of the country in which they have become domiciled. In new countries, new parasites are becoming adapted to new hosts at the same time as old parasites are becoming adapted to a new environment. In a country such as Britain it is improbable that there is now much variation in the species found in domestic animals; but there is no doubt that the incidence of these parasites is changing.

Parasitism is the rule rather than the exception in wild animals; so much so, that a slight infection with parasitic worms should be regarded as a normal rather than as an abnormal condition. It is a curious paradox, however, that the more agricultural science advances, the more frequent must helminthic infections become and the more intense must be the disease and loss which they cause. In the old days, when there were comparatively few animals in the country and, when the means of wintering even these few were lacking, parasitic disease must have been relatively slight. The animals were spread over a considerable area, the numerous eggs which each parasite produces were widely scattered, the chances of infection were reduced and comparatively few helminths were able to develop to maturity. Moreover, many animals were slaughtered in autumn to supply the salt meat for the winter months—a fact which accounted for the supreme importance of spices in the Middle Ages and which had much to do with colonial expansion.

Now, a parasite is an animal which has become adapted to live in a host (during its adult life, at least) so as to provoke the minimum amount of damage to it. Obviously it is not to the parasite's advantage to kill its food supply and thus end its own life. Under the conditions which we have been picturing, therefore, the degree of parasitism must have been slight and parasitic disease almost non-existant. This is true of course, only of the helminth parasites. The ecto-parasites which can reproduce almost indefinitely on a single host, are in a different category. They were common in these days; in fact, our earliest recorded import was Archangel tar for the cure of the sheep scab. When hosts were few and widely scattered, the chances of a young parasite finding a new host were slight and the helminths had in consequence to produce millions of eggs so that one might survive.

The discovery of a method of wintering cattle and sheep must have led to an increase in parasitism, as forms which had been destroyed with their host, were now able to survive until the spring. The enclosing of pastures further increased the number of forms present and improved methods of grass culture still further multiplied them. More animals were kept on a given area of land, more worm eggs were dropped on that area, and more larvae were swallowed from it. The host resistance was reduced and parasitic disease became important. The greater the concentration of stock on any given piece of permanent pasture, the greater the infestation of parasites. The conditions which favour good grass, favour also the free life of the helminth. Some years ago, Dr. Maurice Hall coined the expression "Permanent Pastures Perpetuate Parasites"—and this phrase might well form the motto of every stock owner in Britain. Improved pastures, improved methods of feeding, specialised stock with a lowered general resistance, are all products of modern agriculture and are all factors which have contributed to make parasitism one of the major causes of loss among animals in this country. Scotland, with its huge sheep population, is particularly affected, as these animals share with horses the peculiarity of being scarcely ever free from parasitic worms. Cattle, on the whole, are not seriously parasitised, although Irish stores are frequently infected with fluke; calves, in some places, suffer severely from lung-worms and there are certain minor losses due to Hydatid and so on. It is true that cattle may harbour practically all the species found in sheep and goats but—probably owing to their mode of feeding—they seem generally to escape. Pigs also are heavily infected with worms; the losses in young animals due to ascaris are enormous and it is probably conservative to estimate that over 20 per cent. of all pigs farrowed die from the effects of this worm in the first few months of their lives. Unfortunately the parasitic worms, with a few exceptions, do not produce the spectacular and explosive symptoms of the great epizootic virus and bacterial diseases. The loss, however, is insidious and constant and is at least as great. There is seldom any fever and the usual symptoms are those of a slow and progressive debility. The farmer too often dismisses this as due to poor stock or "bad doers" and the true cause is entirely unsuspected. The fact, too, is often overlooked that these parasites facilitate the attacks of bacterial diseases and a slight bacterial infection combined with a moderate degree of infestation with worms—each in itself incapable of producing a serious condition—will, acting together, cause the death of the animal. This plurality of the causes of disease is one that is too often overlooked in the teaching of medicine, although the practitioner learns by experience how common and how important it is.

There is no doubt that the parasitic diseases, as a cause of loss to the stock owner and the country, are at least as important as the bacterial and virus diseases and promise to become even more important in the future.

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DEPT. OF VET. MEDICINE

There are certain broad general principles underlying the science of helminthology which are not always appreciated. Helminths can have no permanent existence apart from the host animals and they are not capable of multiplying within the body. They must leave the body before the next generation can reach sexual maturity. They are very prolific and produce millions of eggs or larvæ; but in every case these eggs or larvæ must pass out of the body. It follows, therefore, that each adult parasite must have entered the host as a young form from without, either as a contamination of food or water, or, more rarely, through the skin. This is a fundamental difference from the behaviour of the bacteria and the protozoa. In these groups, one organism, gaining entrance to the body, may develop almost indefinitely.

The helminths have another important difference from the unicellular parasites; their eggs and larvæ, as they leave the body, are not in a condition to produce an infection in another host—a period of time, varying from a few hours in the cases of oxyurids to months in the case of other forms, is necessary before the infective stage is reached. This period of delay is usually the most critical in the life-cycle of the parasite and exact knowledge of what happens then is essential in devising means of prevention.

As a general rule, also, parasites have definite host requirements. Parasites of horses can infect other members of the Equidæ, but not other herbivorous animals; parasites of sheep and goats can infect cattle, but not pigs; and so on. There are a few important exceptions to this rule—the most important being the common liver-fluke, which can live in almost any species of mammal from man to marsupials. This rule has an obvious importance in prevention.

Parasitic disease depends on numbers. Accordingly, animals lightly parasitised may show no symptoms: but they are very important reservoirs. A sheep, for example, confined to a small field, will, if it harbours a few hookworms, gradually sow the field with eggs. These will hatch, become infective, be swallowed, and be gradually eaten by the sheep. Ultimately the numbers will break down the resistance of the animal and it will die from hookworm disease.

The question of resistance and immunity to parasitic infections is still a young subject and very imperfectly understood, but one generalisation may be made: young animals are infinitely more susceptible to the effects of helminths than are adults, and our losses in young stock, from this cause alone, may be estimated as between 10 and 20 per cent.

There are other generalisations which might be considered; but space will only permit of the mention of two more. A parasite in an abnormal host usually does not develop; but if it does, it tends to develop in an abnormal position. And, larval parasites are much more severe in their effects than are sexually mature adults.

Ascaris in the Pig.

The adult worms live normally in the small intestine, but frequently invade the stomach, less frequently the liver, and occasionally, the pancreas and other organs. During her life, the female produces at least twenty-five million eggs which are passed on to the ground in an undeveloped and non-infective condition. Under suitable conditions (presence of moisture, oxygen, and moderate heat) each ovum develops into a larva which remains inside the shell and never leaves it in the free state. The egg it now infective and may remain alive for about five years. It is amazingly resistant to adverse conditions.

Once swallowed as a contamination of food, the egg hatches in the small intestine, partly under the stimulus of heat and partly by the action of the digestive juices. The larva which emerges burrows into the mucosa of the intestine and either goes right through into the peritoneal cavity, penetrates a lymph vessel, or—and this is the usual method—a blood-vessel. In this case, the larva is carried to the liver, where a considerable number perish owing to the violent cellular reaction which is set up. Those which survive, leave the liver and pass through the right heart to the lungs. During this migration, they increase in size from about ·25 mm. to 1·5 or 2·5 mm., and moult at least twice. A few larvæ pass to the heart directly through the lymphatics, although this is exceptional.

After leaving the lung, the larva is passed mechanically up the trachea and is swallowed. In the intestine, it settles down and becomes mature. This journey through the body takes about ten days and the total life-cycle can be completed in about ten weeks.

Ascarids in many of the non-mammalian groups of hosts have an identical life-cycle, except that the migration of the larva takes place in a second host, in which sexual maturity is never reached, and which is ultimately eaten by the proper host. It seems legitimate to assume that the wandering habits of the larvæ in the mammal are really a survival of this ancient life-cycle when an intermediate host was essential—a phylogenetic reminiscence. The pig, therefore, acts both as an intermediate host and a definitive host to ascaris. That this is really the case is shewn by the fact that these larvæ will pursue such a wandering course in practically any warm-blooded animal; but on reaching the intestine for the second time, will seldom develop to maturity. Very occasionally, a single lone ascaris is found in sheep; this is merely a specially hardy pig ascaris which has developed farther than usual in an unsuitable host.

Prevention.

Ascaris eggs are able to withstand very low temperatures. They are able to develop after freezing and winter cannot be relied upon to destroy eggs in pens and pastures. Frozen soil, it is true, may assist mechanically in preventing infection during winter by rendering the eggs inaccessible to the pigs. In spring many of those buried during the winter will be still viable. Drying, also, leaves many eggs still alive. The only chemical disinfectants which can be relied upon to kill the eggs are the phenols; and it has been found in practice that in a mixture of eggs, straw and mud on the floors of styes, thoroughly raked and sprayed with a five per cent. carbolic acid solution four times on each of two consecutive days, the majority of the eggs are destroyed. The most reliable and useful disinfectant, however, is heat, combined with scrubbing and cleanliness. A temperature of 70° C., destroys them in a second; temperatures below 50° C. are not effective. However, it is not safe to rely entirely upon the destruction of the eggs; it is more important

to prevent their being swallowed, particularly by young pigs.

Ascaris is one of the few helminths for which a rational means of control has been elaborated. This method was worked out by Dr. Ransom, of the Bureau of Animal Industry in America, and it is usually called the " M'Lean County " system, after the district where it was first tried. In addition to ascaris infection, it prevents a variety of filth-borne infections, but, of course, has no effect on such contagious diseases as swine fever. It consists, essentially, in handling young pigs at their most susceptible age (up to four months old) in such a way as to minimise the chances of infection. Before farrowing, the pens to be used by the sows are thoroughly cleaned, litter removed, and floors and walls well scrubbed with boiling water and soda. The indoor pens are shut off from the outdoor pens, which are not to be used. A few days before farrowing, the sows are washed with soap and water—particular attention being paid to the udder—to remove ascaris eggs. They are then put into the clean pens and left there until a fortnight after farrowing. The sow and her litter are then removed, in such a way as not to expose them to infection, to a temporary pasture which has not been used by pigs within the past few years. Temporary shelters are provided and water is piped or carried. These pastures must be completely isolated from the styes. Here the young pigs are kept until they are four months old or have reached the weight of about 100 pounds. After that time they may be mixed with the other pigs. Sows may farrow in the special pastures in summer or autumn, but they must be cleaned as before, before removal to them.

This system has been remarkably successful in America, where under ordinary farm conditions only about half the pigs farrowed reach the market. Now over three-quarters of the pigs are marketed and they are ready for the market two months earlier.

The Bursate Nematodes.

This group of worms is characterised by the presence of a genital bursa in the male. It may be sub-divided into two other groups—one with a cuticularised mouth capsule, the other without any such structure. The sclerostomes of the large intestine of horses are representatives of the former group, while the trichostrongyles of the stomach and small intestine of ruminants are included in the second group. Unfortunately we are still without reliable information regarding the life cycle of many of these parasites, but the behaviour of all seems to follow the same general lines *outside* of the body. The female lays a thin-shelled egg which is passed on to the ground with the droppings. Very quickly—in 24 hours in summer—if the egg finds the conditions suitable, there develops a minute larva, which as soon as it is full-grown, breaks the egg shell and escapes into the fæces. It feeds on the bacteria which it finds there, grows, moults, grows again, and moults a second time. The third stage larva, as it is called, does not normally leave the cast skin of the second stage, but moves about with it covering its body like a sheath. This is the infective stage and it is very resistant to adverse influences, much more so than the eggs and previous stages. While these seldom survive freezing and are easily destroyed, the infective larva can live over the winter. It tends to leave the fæces in which it was reared and in many cases climbs up the moist film on grass, retreating to the ground as this film dries up. It is often attracted by moderate heat and, in a few cases, has the power of penetrating skin. Most of the forms of herbivores, however, have not this power and are ingested with grass. The larvæ can also survive a certain amount of actual drying—this appears to be especially the case with the horse sclerostomes—but none have the powers of resistance shown by the ascarid egg with its thick shell.

The behaviour of the larva after it is swallowed is still largely unknown. In many cases there is an actual migration into the tissues of the body. Most of the sclerostomes do this, and while many species do not travel farther than the sub-mucosa of the large intestine, others travel very far afield and one species actually invades the mesenteric vessels, where it is responsible for the fatal colic often seen in colts. In ruminants, the larvæ do not seem, as a rule, to leave the stomach or intestine, but very often they burrow into the depths of the mucosa and at least one common species actually forms cysts in the gastric mucosa. During the parasitic development, there are typically two other moults—making four in all—before the parasite becomes sexually mature and commences to lay eggs.

The damage done to their hosts by these parasites, if numerous, is considerable, and the question of their adequate control is important. Unfortunately, until we have more knowledge as to the parasitic development of the larvæ and the time this takes, we can make only tentative suggestions. In South Africa, a successful method has been employed to hold one of the most important of the stomach worms in check and, as our knowledge increases, a similar method will probably be extended to the other forms.

It has been found that copper sulphate is an excellent anthelmintic for the wire-worm of sheep; and it has been found that the larva takes about three weeks after ingestion to become mature: the complete life cycle requires nearly four weeks from egg to egg. If sheep are dosed with copper sulphate and returned to the pasture, they do not spread any new worm eggs, but they continue to swallow infective larvæ. If, however, these are killed before egg laying commences, by a second dose of the drug, they have no opportunity of continuing the infection.

Accordingly, by dosing the animals monthly, and still allowing them to graze on infected pastures, in about a year the ground is nearly free of parasites and comparatively safe. Thereafter an occasional dosing will keep it safe. If we had a drug which was a hundred per cent. effective against these worms, this period could be reduced, and the relative safety could be made absolute.

A similar technique can be adopted for horses, using carbon tetrachloride or oil of chenopodium at intervals of about a month. The time factor in the case of equines, however, is not definitely known and a month is only an estimate; it may be necessary to reduce this period, or possibly to extend it. The essential part of this system is to keep the animals on the infective fields and to dose at regular intervals.

We are still without any knowledge of how to kill the free larvæ without injury to the pasture. If the fields are left fallow for a year, the worm larvæ die naturally. If the type of animal grazing is changed, they are at least reduced in numbers because horse parasites will not develop in sheep.

Conclusion.

There are two other groups of the greatest importance to practitioners—the liver flukes and the lung-worms. The former involves snail intermediaries, while the latter may have an intermediate host or not.

The time does not permit of an extensive survey of the biomics of the flukes and the snails. Moreover, their control has been dealt with at some length in recent years and need only be mentioned here. It involves three main processes (*a*) treatment of carrier sheep with carbon tetrachloride from time to time as indicated; (*b*) destruction of snails on pastures with copper sulphate; and (*c*) draining or filling of marshy areas as far as possible. The life histories of the lung-worms is still incompletely known and must be left to a later occasion. Our information at present shows that the forms found in the bronchi of sheep, cattle, and horses have a direct life-cycle; those found in pigs are carried by earth-worms; while the common lung-worm of sheep—which is really *Muellerius capillaris* and not *Synthetocaulus rufescens*—is carried by snails and slugs of various species. The cat form, which is common in the Edinburgh area, is carried by mice, just as is its common tapeworm. However, these are the subjects which may well be left to a future occasion.

I hope that during this short survey of some of the helminth parasites of stock common in Scotland, I have been able to show their importance to the farmer and therefore to the practitioner. Together, they must be responsible for an enormous amount of obvious damage to animals and an even greater amount of occult damage. It is in conjunction with other factors— such as diet, bacterial diseases, ecto-parasites and so on—that helminths probably do the greatest damage, and the practitioner must always keep them in mind in dealing with other conditions.

Discussion.

Professor W. M. Mitchell said he had recently called in Dr. Cameron in connection with worms in horses, and in consequence had not changed his mind regarding the important part they played in the health of animals. He had made a large number of *post-mortem* examinations in connection with an investigation of shivering in horses, and had found worms present in nearly every case. He wondered whether their presence could have anything to do with the lesions in nerves, joints and arteries which he found. He expected that a toxin in the circulation, produced by the worms, might give rise to lesions in areas remote from the seat of the worm infestation. He would like Dr. Cameron to mention in his reply what the relationship might be. Questions which were puzzling were: (1) why the base of the cæcum, which was not covered by peritoneum, should be so frequently heavily infested? and (2) why should the invasion of arteries by worm embryos be limited to the cranial mesenteric artery and its branches?

In connection with treatment by dosing, he had had two cases in hunters suspected of organic disease of the heart where worm eggs were found in the fæces. In consequence, these horses were dosed with a vermifuge and the heart condition immediately cleared up and the horses became quite fit again. This experience and others raised the question—just when should a horse be dosed for worms? What was the critical sign? Could it be determined according to the concentration of eggs in the fæces? In the army all poor horses were dosed for worms whether an examination of fæces showed worm eggs or not.

Dr. A. E. Cameron was called upon by the President (Mr. W. Nairn), and said that he hesitated to speak, being a visitor and not a veterinary surgeon, but he had listened with interest to the address. His own interest in worms was first aroused in Central Canada, where he was engaged in swamp fever investigation work. Very many horses were there found to be heavily infested, and he had realised the importance of nematode worms to the horse owner. In some cases they had found that when horses with swamp fever were dosed with anthelmintics the swamp fever appeared to improve. Dr. Ransom was associated with the work, so that the possibility of an association between the presence of worms and swamp fever was fully explored.

Arising out of the mention of Ascarid larvæ infestation in pigs, where a verminous pneumonic condition was common, he wondered whether any cases of verminous pneumonia due to Ascarid larvæ had ever been noticed in horses? He had seen several cases of it in Saskatchewan where young colts, especially, showed practically the same clinical symptoms as were seen in young pigs.

He would like to thank the members for allowing him the opportunity of speaking.

Mr. Esmond Brown asked for further information regarding the loss of young pigs from worms. He, personally, thought that an estimate of 20 per cent. would be rather high. So many young pigs died, in which the cause of death was never ascertained. He had always looked upon bad feeding and hygiene as the most important predisposing causes of worms in young pigs, but he thought that early weaning and an unsuitable diet leading to digestive disturbances was a more serious cause of death in young pigs than worms. He would like to ask Dr. Cameron whether, in sheep, the effects of worms were liable to culminate in a kind of crisis, or how was it that in many instances there might be a sudden heavy loss of lambs at pasture without the typical wasting and loss of condition which were what one expected?

The President said that he thought they had had an interesting address. He agreed with a 20 per cent. estimated loss in young pigs from worms. The loss from worms was amazing in young pigs kept on the outdoor system with inadequate pasturage, particularly where the system was one of small paddocks.

He recalled the supposed association between sclerostomes and grass sickness in horses, when practitioners were advised to use chenopodium on all farm horses in the grass sickness districts. Unfortunately, the horses which were dosed were often those which died first, and many controls which had as heavy an infestation with worms and were not dosed remained healthy. He called upon Dr. Cameron to reply to the discussion.

The Reply.

Dr. Cameron said that the question of predilection of worms for the base of the cæcum in the horse was one for the anatomist to answer, but the reason for the more frequent invasion of the walls of the cranial mesenteric artery seemed to be that the worms penetrated the wall of the intestine and immediately sought the blood vessels; then, passing against the stream of blood, they would ultimately reach the cranial mesenteric or its larger branches. The question of toxins was a difficult one. Worms did produce toxins, hæmolysins especially, some of which were believed to have an effect on nerves, but more than that could not be said in the meantime. There possibly might be some connection between nerve degenerations and toxins of nematode origin.

The time for dosing a horse against worms was correlated with the clinical symptoms rather than with the results of fæcal examination. In connection with the time of the year, he would like to point out that from the point of view of prevention the best time to dose was in winter time, but from a clinical point of view dosing would show best results if carried out in late spring or early summer. It was just possible that eventually a hæmatological test might be elaborated which would act as an index of the degree of infection with worms. In the meantime, it was wise practice to follow army instructions and be guided by symptomatology.

In reply to Mr. Brown, the 20 per cent. estimate was based upon a careful survey made in America, under conditions which were more or less comparable to those in this country. The question of culmination was a difficult one. He was quite aware of the occurrence of what seemed

to be the precipitation of an outbreak resulting in heavy losses suddenly. Typically, however, there was a gradually progressive emaciation, remaining afebrile so long as intestinal anærobes did not complicate the picture, but the trouble was that they so frequently did become active, especially where pasturage was scanty and herbage likely to be heavily contaminated by dung.

In connection with the President's remarks, he would like to suggest that a thorough classification of parasites found in horses killed by grass disease would be very important and should be undertaken at once. Even though a knowledge of all the species and genera found in these horses might not help very far in the elucidation of the disease, it would be exceedingly valuable information to have and would enable more appropriate measures to be taken against worms in horses in ordinary general routine practice.

Veterinary Inspectorships in the Counties.

Derbyshire Decision Rescinded.

"Because the elimination of tuberculous cattle had proceeded satisfactorily without routine inspection, Alderman E. Peat (Halfway), at a meeting of the Derbyshire County Council, held on January 28th, moved that a resolution at the previous meeting appointing two full-time veterinary inspectors be rescinded," says the *Birmingham Post* of January 29th.

"The Alderman argued that in Derbyshire, pursuing a vigorous policy, the Animal Diseases Committee had carried out the work better than counties which had appointed full-time veterinary surgeons, and had dealt with more cases per hundred cows than counties with routine inspection.

"Councillor W. J. Harrison (Wirksworth), in supporting the appointment, said it had been forced on them by Sheffield, Birmingham, Manchester and those other cities which took 75 per cent. of the milk produced in Derbyshire. Those cities had civic consciences, and were out to protect infant life and invalids from infected milk. Derbyshire must not stifle its conscience in favour of vested interests.

"Councillor H. Wynn (Langley Mill) alleged that the dairy farmers as a community feared inspection.

"Alderman Hawksley Edmunds (chairman of the Health Committee) said he did not like the motion, because behind it was the Farmers' Union with threats to members of the Council that if they did not vote for it they would be opposed at the next election. Derbyshire was being watched very closely by Sheffield, Birmingham, Derby, Manchester and other cities, and very much depended on the result that day.

"The resolution to rescind was carried by 47 votes to 20."

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Veterinary Inspection in Kincardine.

At a recently-held meeting of the Kincardine County Council Public Health Committee, the Chairman (Dr. W. Sinclair), reported that Dr. Rae (County Medical Officer) was very anxious that a veterinary surgeon should be appointed for the county as soon as possible. He would work both sides of the Dee at a salary of £450, a proportion to be paid by Kincardine and a proportion by Aberdeenshire until the end of the year, when they would see how things worked.

Dr. Rae had a candidate in view, and the final choice would lie in his hands.

Provost Howie, Laurencekirk, said that if the final choice rested with Dr. Rae there was no use for them as a County Council. He could not see why the regional medical officer should have the final say in the matter. It was up to them to make the appointment, not Dr. Rae.

The Chairman said they should advertise and have a short leet.

Councillor Callan said Dr. Rae was quite right in giving his opinion, but he should not have the last say in the matter.

It was agreed to have an interview with Dr. Rae at an early date.

Treatment of Canker of the Horse's Foot.*

By Wm. Nairn, M.R.C.V.S., Blairgowrie, Perthshire.

The name suggests that we are dealing with an ancient disease, the clinical appearance of which was well known but whose etiology was like that of grass disease—unknown when it was named.

It has been recorded, I think by Professor Mitchell, that the dominant infection in this trouble seems to be the bacillus of necrosis. So far as therapeutic interest is concerned, it is sufficient to recognise that a local infection of the tissues is the primary cause. To permit the infection to become active, there must be some small wound or wounds in the horn. These may be various, and I have had a number of cases starting in the centre of the sole, as a result of a bruise and even from the wound caused by a nail puncture when it was neglected.

In my district this disease is decidedly increasing in frequency, and we might profitably consider the factors which account for this increase. One of the chief factors, I think, is the post-war economy in shoeing. The horses go so long without a visit to the blacksmith that their feet become very much overgrown. The smith is under the impression that his charge does not pay for this extra work, and he leaves the feet much less trimmed than formerly. I also think that the teaching in the past, that the frog should not be trimmed but worn away on the road, has contributed a good deal to the trouble. In Scotland, the horse shod with heels and toe-pieces does not get his frogs on the ground, so that they become overgrown. This overgrowth of dead horn retains filth and moisture, and, keeping the horn soft, favours injuries of the parts. In the same way, bad hygienic conditions in the stable favour the trouble. Badly drained floors, unclean floors, bedding with peat-moss—all these conditions are against the health of the feet. In most farms the moss is changed once weekly, leaving a wet, sodden accumulation for the animals to stand in.

Animals which show an unusual growth of hoof with deep clefts, also seem more susceptible. Above all these predisposing causes, I think some animals possess a lower resistance to the infection and, with very slight encouragement, become victims. Last year I treated on one small farm the whole stud of horses (four in number). These were all related and were all severely affected. I must admit that in this case bad hygienic conditions prevailed.

I have briefly discussed the etiology of the disease, because it has a bearing on the treatment. Most writers on the subject are satisfied that the actual cause is a living organism and in our treatment we must pay due regard, not only to this fact, but also to the secondary causes and see that they are removed.

There is no more inhibiting factor to our treatment than moisture, and it does not matter whether it is liquid filth or clean water—they both prejudicially affect the treatment.

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I prefer the animals to be kept at work if they are not too lame, and if properly treated they should not be so in most cases.

There is no harm in their being at grass throughout the day in dry weather, but at night or in wet weather they readily get their feet wet. Preserving the dryness of the feet is a great factor in our favour when treating the disease.

Noel Pillers, in 1922, at Bath, advocated the benefits of pressure with rolls of tow. These will no doubt do good, but I think their influence is more by keeping out moisture than by any pressure on the parts.

The treatment of canker must fulfil four essential requirements :—

1.—It must be successful in curing the disease;

2.—It must do so in a short time, otherwise the cost will outweigh most other advantages;

3.—It must not be too exacting in the need for frequent dressings;

4.—It should not of itself make an animal unfit for work.

I think the treatment I am about to describe will answer satisfactorily all these needs.

From an academic viewpoint my treatment may not satisfy all the canons of modern surgery, but in country practice we have to adjust our methods to our circumstances, and the extent to which the country practitioner can do so successfully, is the measure of his success in his surgical capacity, in a country practice.

When we come to actual practical treatment we must pay due regard to the importance of the following general requirements :—

1.—We must remove all under-run horn;

2.—We must thoroughly disinfect the part;

3.—We must keep it as dry as possible.

To achieve the first, we must put our patient into a position where we have complete control. I never used stocks and have no desire to use them for this purpose, because, though we fix the animal, we cannot completely fix the foot, and the horse nearly always fidgets and moves at critical moments.

Nothing shortens the treatment of a bad case so much as a general anæsthetic. Under it, one gets freedom to make sure that all horn which should be removed, is removed. Occasionally, with quiet animals, we may succeed in removing all the necessary horn without special restraint. In passing, I would say the worst animals I get are those which have been treated with some quack remedy such as butyr of antimony. The second essential I mentioned was disinfection of the area, and each will no doubt have his own pet disinfectant, but I have pinned my faith to formalin for this purpose, and do not regret it. Many will disagree with its use, but I have no hesitation in saying that they have not mastered its use. In the early days, diluted with liquids, I got very erratic action from this agent, and while some cases were the better for treatment, others were the worse. I then diluted it in a putty or paste and this has been very successful with me. A good covering of this paste smeared over the part and covered with cotton-wool seems to disinfect the part effectively.

Sometimes, when treating a very unwholesome case, I trim the foot lightly and cover with dressing, cotton-wool, and plate. After a week I have a more attractive field to work on, with no odour and much less inclination to bleed.

Here I would point out that when we are about to do any extensive cleaning on the foot, especially stripping the wall, it is wise to use a good tourniquet to the leg.

The third essential, to protect the part from moisture, may be achieved in various ways. The dressing is pressed into close contact and this helps very much. I then cover with cotton-wool—as much as I can get into the foot—and allow the plate down into its place. Rolls of tow (but for the time in making) would do quite well. But I have not found tow used loosely so satisfactory as cotton-wool.

I then give instructions to keep the animal's feet as dry as possible.

Let me now describe in more detail my procedure with a typical case of canker affecting the frog and part of the sole.

After proper control, I first reduce the foot to normal size all over, and pare down the healthy horn to the thinnest; then, if the edge of the hard horn is lifted with forceps, I can lift up as far as is under-run, and remove with knife. It is better to remove a small edging of sound horn all round the area.

The bar is most likely affected, and this must be completely removed, and similarly with the frog except where sound.

Be careful, if the diseased process extends out to the wall, to determine the limits of its work. If you have much pathological overgrowth, remove it by knife or scissors. Of these two, I prefer the scissors. After it appears cleaned up, I then apply my paste, cotton-wool, and plate, and leave word that I will see it in a week.

I then scrape off any soft growth (which now comes off more easily) and examine for any extension of the diseased area and re-dress.

If the case has been completely dealt with, two other dressings ought to effect a cure.

Recently I had an aged animal brought to me with the frog, sole, and wall from quarter backwards, affected. The owner, who was not too wealthy, had bought the horse for £12, and it was a severe blow to have to destroy the animal. He had seemingly been treated before, as whenever he was touched about the foot he became a desperate brute. I put him down under chloroform, trimmed his foot as fully as it seemed to require and left him for ten days. I then dressed the foot and found all healthy except the right cleft of the frog, which was then dressed, and he only required examination to see he was all right. One cannot expect to do that with every case, but I mention the case to show that the animal does not require to be valuable to pay for its treatment.

When we come to deal with the disease affecting the wall, I must say I do not find it any less tractable to treatment, but one has to be very thorough in following up the unhealthy area. Some writers favour leaving the wall attached and packing inside it. I must say I never had good results with that method. If I find the disease extends more than half an inch up the wall, then I proceed to remove it, and this may be done in several ways.

One may rasp the horn thin, then pare it off until one gets beyond the limits of the disease. This is the more conservative method, but I usually make a groove near the coronet and parallel to it, then two grooves running in the direction of the laminæ and slightly beyond the unhealthy tissue. When grooved almost through, I take forceps and remove the separated piece. If you have not applied a tourniquet you will then realise the need for it. You get a clear view of the diseased area, but if it goes closer up to the coronary band, then you must remove all horn right up to the top. This is the most effective method. The big trouble I had with the more conservative method of paring away gradually, was that when I got blood, I thought all the horn was removed, whereas pieces of the horny laminæ were frequently left attached and joined by small bridges over the sensitive laminæ. When this occurred, the case never improved until these pieces were removed. After stripping, one should run the point of the finger over the area in a search for any spicule of horn left. I find the cases respond to the treatment quite well without the covering of horn. I smear on the paste; cover with cotton wool, and then put a strong bandage round the foot. Work soon knocks a bandage to bits, and it is quite a good plan to wind stout twine round the bandage or better still a covering of leather.

I now come to what I regard as one of the most important parts of my story, *viz.*, the recipe for the preparation. Formalin, diluted with any cheap powder, such as whiting, kaolin, or chalk, and made adhesive with oil, such as rape, will do excellently for the purpose. I admit a slight weakness for a more complicated preparation, and I have a paste made as follows:—

℞:

Creta prep.	...	ʒ iiiss.
Plumbi nit.	...	ʒ i.
Formalin ...	...	ʒ ii.
Ol. rapü ...	...	q.s.

I put the chalk and lead nitrate in the mortar and mix, add the formalin, then enough rape oil to make a soft putty, as it usually becomes firmer in a short time. The important part is the amount of formalin. When the disease is old standing I use 2½ drachms but never more under a plate, as with 3 drachms you will get tenderness and some lameness.

When the disease affects the wall, and the part is only covered by cotton wool and bandage, if it does not respond to 2½ drachms, it may require 3 drachms, as it evaporates more rapidly in that position. Frequently when it affects the wall, I leave some paste with the attendant to dress at mid-week. Otherwise, I never dress oftener than once weekly, and in cases at a distance—say, 15-20 miles—I do not go every week, but leave some dressing and instruct the attendant how to scrape out old dressing and apply fresh paste. Wherever possible I get the cases sent to the forge, as I usually remove the shoe at each dressing.

One occasionally comes across canker affecting the perioplic ring, and one finds that it is more likely to cause "groggy" action than any other form. There is an excessive surface growth on the hoof. I treat it by rasping down the separated horn at the top of the wall, and rubbing in the paste. These cases repay being kept in and kept dry, even more than the others.

Discussion.

Professor Mitchell said he had listened to the President's paper with great interest. He had always held that cases should be kept at work as far as possible, and he hoped that more practitioners would be stimulated to treat their cases at home in consequence of the paper. He fully intended to try Mr. Nairn's method of treatment himself. He considered that in infection of the wall of the hoof running up underneath an outer hard crust, it always was better to strip the wall right up to the coronet. It did not require anything more than a healthy matrix to form healthy horn, but the worst type of case he had met was that in which there was a thickened diseased matrix, sometimes ¼-in. to 1-in. thick. In these, free use of the knife was best, and even complete excision of the affected matrix was necessary in some cases.

He was surprised to learn of the ease with which Mr. Nairn managed his subsequent dressings; when formalin was the active ingredient of his preparation, he would have expected formalin to have been painful and caustic enough to cause the horse to resist dressing.

He agreed with Mr. Nairn that inadequate reduction of the hoof was an important contributory cause of the increase of canker cases, and he thought the supposed economy of infrequent shoeings was responsible. He had had a succession of cases from some farms where he believed the owner was trying to economise on his shoeing bill.

Mr. A. Spreull (senr.) said canker had always interested him. He thought he would be induced to send some of his cases to Blairgowrie in future! He agreed that cases of canker were on the increase. He had used an intravenous injection of chloral instead of chloroform with good results and less anxiety on account of the administration of the anæsthetic.

He treated most of his cases by having them stand on a lime and sawdust bedding if confined to the stable. His trouble was in getting enough assistance for control. A bad case might necessitate the employment of five or six men in all, and on most cases he thought the practitioner lost financially in the long run. He had tried Mr. Nairn's paste and out of eight bad cases this year two had failed to respond to treatment.

Mr. Bishop agreed that it was essential to keep the feet dry during treatment. Some cases were easy to treat, and others, he thought, impossible to cure. He had seen formalin used as a spray, and he did not think it was a new treatment. He thought that dressing was very difficult; even in stocks some horses could not be properly dressed.

The Reply.

Mr. Nairn, replying, said he did not agree that by his method formalin was painful or induced undue sensitiveness of the foot. Obviously, one could not expect all cases to respond equally well; some were more prolonged than others. Those with a greasy condition at the back of the clefts and about the heels were the most troublesome and needed careful attention. By this method the practitioner had extraordinary advantages in that he did not need to do daily dressings: he could correct his operative technique at the time of dressing, for if he had not moved all the diseased horn and débris at the time of operating, he could do so ten days later when he dressed the foot, and again similarly subsequently. At the same time, it was always most desirable to remove as much of the diseased tissue as possible, and preferably all of it, at the first time when the operation was being performed. The knife was necessary to pare down granulations. It was most advisable to force some of the paste well down into the lateral and median clefts of the frog.

He did not like confining the cases to a stable as Mr. Spreull suggested; they were better at work if not lame. He agreed that formalin was not new, but he claimed that his method of using it was new. He did not like formalin in solution with various other liquids, nor had he been successful with a spray. The point of it all was that in paste form it lasted longer, was milder but continuous in action, and in combination in his paste with a lead salt, healing was rapid. He had found that lead salts were very useful for stimulating healing. He thanked the members for their attention and for the way they had received his address.

An Appreciation.

By Hamilton Kirk, M.R.C.V.S.

"No matter how advanced is one's knowledge of the pathology and treatment of a condition, or how skilful is one's surgery, it is all of no avail if diagnosis is wrong."

Such was the opening statement of Professor J. G. Wright's address to the Royal Counties V.M.A. meeting on December 5th, 1930. How true this is, and how important a place "diagnosis" should occupy in the veterinary curriculum, nobody knows better than the practitioner who is daily asked to solve the problems of etiology.

Professor Wright laid stress upon the necessity for eliciting detailed histories of cases, and this can hardly be over-emphasised. The principle adopted by Harley Street specialists of committing to paper the answers obtained to their many and varied questions, is one which is to be highly commended. Not only have they collected their facts from which they can at leisure consider their diagnosis, but they have also made a complete record of the case should they later find it one of sufficient interest for publication.

Hardly less urgent is the need for systematic examination of the patient, including in that examination the employment of every known method of diagnosis which is applicable to the particular illness. Even those methods which do not at first sight appear to be applicable, may at a later stage be found to yield valuable clues. I allude now to urine tests, blood tests, examinations of fæcal matter, and the like.

Professor Wright tackled the subject of diagnosis from an unusual angle, and developed a most logical line of thought in the elucidation of disease. His method of selecting an outstanding symptom of the illness and then recalling every known exciting cause for that symptom, enables him by a process of elimination to arrive finally very near to the truth of the condition. It is a method which might, with very great advantage, be elaborated for the teaching of students in our colleges. The old (or perhaps even present) method of teaching "medicine" was to select a known disease as the subject of the lecture and then to recount the many symptoms to which it may or may not give rise. But so many diseases may manifest a train of almost identical symptoms, that a student is apt to be left wondering how he would distinguish one malady from another with any certainty.

The first symptom dealt with by Professor Wright was that of laboured respirations, against which a list of conditions, known to be variously responsible, was appended. A study of the list would enable many of the conditions rapidly to be ruled out when considered in conjunction with other special circumstances of the case; and so the diagnosis would become narrowed down very considerably. Take, for example, the commonplace symptom of emesis and the ease with which one can miscalculate its cause. The most obvious explanation is not infrequently incorrect, and whilst a hurried examination of the patient, or a thoughtless neglect of detail or history, might lead one at first to diagnose simple gastritis, the true condition might be nephritis, peritonitis, biliousness, giddiness or one of a host of other and more remote abnormalities.

Professor Wright then went on to the consideration of emaciation, and indicated that a whole book would be needed adequately to enumerate and discuss all the important symptoms of disease which are observed in animal illnesses.

He could, in fact, only touch the fringe of the idea, and as I listened to him I realised how valuable a text book, written on those lines, would be to the undergraduate and to the experienced graduate alike.

It seems somewhat rare for the writers of valuable general articles in the veterinary press to receive adequate (or, in fact, any) recognition of their contributions. It gives me pleasure, therefore, to break the rule in expressing my great appreciation to Professor Wright for his highly instructive thesis.

The Nature of Milk Fever.*

By J. Russell Greig, Ph.D., M.R.C.V.S.
Director, The Moredun Research Institute.

Milk fever has been well named "The Disease of Theories." Since rather over 100 years ago, when it was first recognised as a clinical entity, it has constantly intrigued the attention of veterinarians throughout the world, and has perhaps given rise to more speculative hypotheses upon its cause and nature than any other disease in veterinary medicine.

The hypotheses may be classed under the following heads:—

General Inflammation; Derangements of the Nervous System; General Circulatory Disturbances; Cerebral Anæmia; Cerebral Congestion; Apoplexy; Thrombosis; Fat Embolism; Spinal Traumatism; Aeræmia; General Microbic Infection; Bacterial Infection of Uterine Origin; Bacterial Infection of Mammary Origin; Anaphylaxis; Mammary Neurasthenia; Avitaminosis; Anhydræmia; Auto-Intoxication.

While speculative controversy raged, there appears to have been a curious lack of application of the experimental method for the confirmation or refutation of any of these hypotheses. Practitioners were still left without any reliable guide to the treatment of the disease and, while various treatments from time to time found a measure of favour, no real advance was made. The year 1897, however, marks an epoch in the history of milk fever, for that year, J. J. Schmidt, a veterinary practitioner in Kolding, Denmark, reached certain conclusions in his investigation of the disease, which in their application yielded remarkable results.

It will be remembered that at that period bacteriology was becoming increasingly recognised as a science capable of elucidating the nature of diseased conditions. Many diseases were yielding to investigation by bacteriological methods.

It was natural that Schmidt should consider the disease as a bacterial infection, and since it was obvious that the malady was closely related to milk secretion, he considered that the udder was the seat of microbic invasion. To test his hypothesis, he subjected the milk of affected cows

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to microscopic examination, and he discovered what he believed to be evidence of cellular disintegration and concluded that some ferment or toxin within the udder was responsible for the degeneration of its lining epithelium.

Actually what Schmidt mistook for degenerated cells were normal elements and had he controlled his observations by examining the colostrum of healthy cows, he would have obviated making a false observation.

It is extraordinarily fortunate that he did not do so, for having convinced himself that some living pathogenic agent was present in the udder, he proceeded to inject into the gland a solution of iodide of potassium, which was then believed to possess antiseptic properties. We know to-day that iodide of potassium is devoid of antiseptic action.

We can imagine with what joy Schmidt noted the response which followed this new treatment. Case after case recovered. He quickly communicated the results of his investigations to his brother practitioners, and the practice of the Schmidt treatment rapidly extended and eventually became general.

Schmidt has been rightly regarded as one of the pre-eminent benefactors of the dairying industry.

Later it was found by Anderson of Skanderborg and others that inflation of the udder with atmospheric air, as distinct from injection with antiseptic fluids, was even more effective, and was less likely to be attended by mammitis, and so, by an extraordinary series of false observation, erroneous inference and misguided choice of remedial agent, we had discovered to us a method of treatment as spectacular surely as any throughout the whole range of therapeutics.

But, while the discovery of this specific treatment gave rise to fresh ideas as to the nature of the disease, our knowledge of the essential pathology of milk fever was not advanced. The very simplicity and specificity of the mysterious treatment rendered the nature of the disease all the more obscure. That milk fever should have been the object of continued interest is not surprising when we consider the dramatic features which attend it.

We are presented with a case in which a cow in prime condition and apparently perfect health passes successfully and without mishap through a perfectly normal physiological crisis,, *i.e.*, parturition. Whereupon she is suddenly struck down with a serious malady from which she, in all probability, will die unless she be subjected to a mechanical procedure quite ridiculous in its simplicity, whereupon she makes a recovery almost as rapid, and certainly as dramatic, as was the onset of the ailment.

I confess that, personally, I have always possessed a keen appreciation of the dramatic, and I can remember very vividly how my imagination was stirred on encountering and treating, as a young student, my first case of milk fever. It seemed to me that if we could only gain a true concept of the nature of this mysterious malady, or alternatively, if we could comprehend the means whereby simple inflation of the udder produced its remarkable effect—if we could only read the riddle aright—we would have granted to us a new vision of pathological process. Since that time milk fever has been to me an entrancing problem.

In 1924 I, in collaboration with Professor Henry Dryerre of the Royal (Dick) Veterinary College (now Physiological Biochemist at the Moredun Institute) attempted the serious investigation of the problem, and as up to that time none of the experimental investigations had afforded any clue to the nature of the disease, we considered that a fruitful line of enquiry might be obtained by first submitting the whole matter to a process of reasoning.

Commencing with the fact that specific cure resulted, no matter whether antiseptic fluids, sterile water, oxygen or air were injected into the udder, it seemed obvious that the curative effect, whatever it might be, depended upon the mechanical distension of the mammæ.

We then premised that simple distention of the mammæ must act either :—

(*a*) By causing some endocrine disturbance and/or

(*b*) By mechanically retarding or arresting milk secretion, and so preventing the loss in the milk of some substance vital to the organism.

That the disease was in some way closely associated with milk secretion was suggested by the facts that :—

1. Its appearance as a clinical entity was coincident with the commencement of the development of the modern heavy milking strains.

2. It was much more prevalent in dairy breeds than in beef breeds.

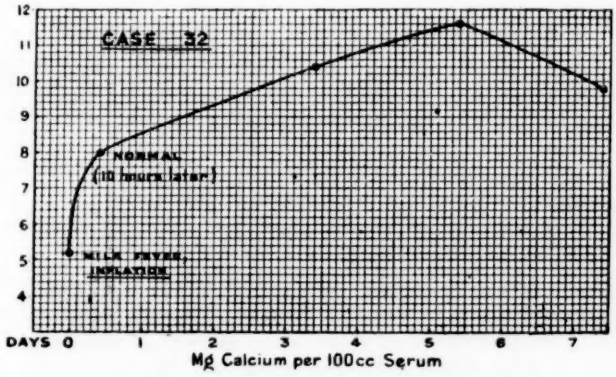
3. It very commonly attacked those individuals which possessed specially heavy milking qualities.

4. The period of greatest susceptibility in the milking life of an individual cow corresponds to the period of greatest milk secretion. Primipara were very rarely affected.

5. The rapid emptying of the udder by hand might precipitate the onset, while the practice of repeatedly removing small quantities of milk or, alternatively, of permitting the calf to suck the cow for the first few days after calving, was recognised as a valuable preventive procedure.

The milk cow has been bred to produce an enormous quantity of milk; indeed, the quantity of her milk secretion may now be regarded as almost pathological.

The colostrum of the cow is rich in calcium, and it was considered likely that the onset of a profuse lactation might occasion a rapid reduction in the concentration of the blood calcium. This idea seemed to be supported by our further observation that the spastic seizures which often characterise the early stages of milk fever were tetanic in character.



Effect of inflation of the udder on the blood calcium concentration in a case of milk fever.

We believed that the mere mechanical withdrawal of calcium from the blood as the result of the onset of a

profuse secretion of milk could not in itself be regarded as the cause of milk fever, because if this were so every heavy milking cow would be subject to the disease. For that reason we postulated that some other factor must act as a predisposing cause, and we suggested that such might be found in parathyroid dysfunction. As is well known, the parathyroid possesses among other functions that of controlling the level of calcium in the blood and soft tissues.

The following, then, were the essential points in our hypothesis[1] :—

1. The nature of milk fever may be understood as a parathyroid deficiency, resulting in the accumulation of toxic substances, such as guanidine; and a fall in blood-calcium, the fall in calcium being further accentuated by lactation.

2. The curative effect of mammary inflation is due to :—
(*a*) The stimulation of adrenal secretion and the consequent oxidation of toxins and/or
(*b*) The retardation of the formation of milk and the consequent prevention of further free exchange of calcium from the blood to the milk.

3. The preventive value of a restricted withdrawal of milk from the udder after calving is due to this procedure conserving the concentration of calcium in the blood.

If our conception of the nature of the disease was correct, then it followed that the blood-calcium in milk fever should be below normal (hypocalcæmia). Analyses of seven samples of blood from as many cases of milk fever showed an average of 4·8 mgm. calcium 100 c.c. serum; a marked reduction when compared with the normal—9 mgm. to 11 mgm. per 100 c.c. of serum.

While our subsequent work has amply confirmed our original view that acute calcium deficiency was an important factor in the production of the disease, there is now reason to doubt whether the accumulation of guanidine bases plays an important part in its causation.

Our original view that mammary inflation possibly stimulated the secretion of adrenalin may also now be abandoned in view of the carefully conducted experiments of Auger[2], who was unable to note any rise in blood-pressure following inflation of the udder.

Later, in 1925, Little and Wright[3] recorded the results obtained in blood-calcium determinations on twelve cases of milk fever. They showed that a considerable diminution in the blood-calcium (in mild cases 20 per cent. to 30 per cent., and in severe cases up to 60 per cent.) accompanied the onset of the disease, and they also found that the greater calcium reductions accorded with the more severe cases.

These and our own experiments therefore furnished considerable support to our hypothesis, and further work has amply confirmed the original conception that calcium deficiency is the primary cause of the disease.

Fish[4] and Sjollema[5] have shown that a deficiency in the blood-phosphates usually, but not invariably, also occurs in milk fever.

The significance of the phosphate fall is yet to be determined, but that it should commonly occur in milk fever is not unexpected, since the metabolism of calcium and that of phosphorus are so closely bound, and since it is believed that calcium occurs in the blood as the tertiary phosphate.

The results of our experimental work may be summarised briefly as follows :—

1. There is no difference between the calcium values in parturient cows and those in non-parturient cows and in bullocks.

2. The onset of milk secretion is accompanied by a transient but appreciable fall in the blood-calcium, which returns to normal after the crisis of initiation of lactation is passed.

3. In milk fever there is invariably a pronounced fall in the blood-calcium (82 cases examined). The degree of severity of the symptoms bears a distinct relation to the calcium level in the blood. From a series of observations made in one case, before and during the attack, the fall in calcium appears to be abrupt; it is coincident with the onset and corresponds with the progressive severity of the symptoms.

4. In an examination of 81 cases of diseased conditions in cattle other than milk fever, none was found to present a hypocalcemia in any way comparable to that which obtains in that disease.

5. Inflation of the mammæ of normal lactating ewes causes a rise in the blood-calcium (about 10 per cent.).

6. Inflation of the mammæ of the cow in cases of milk fever results in a pronounced rise in the blood-calcium. The rise is at first rapid, and the case usually shows definite signs of recovery when a level of about six to seven mgm. of calcium per 100 c.c. has been reached.

7. Injection of calcium gluconate, exclusive of other treatment, elicits specific curative response in milk fever.

8. The subcutaneous injection of calcium gluconate can abort the milk fever attack. Evidence has been obtained which suggests that calcium injection immediately after calving and preferably reinforced by a second injection about 24 hours later would prove a preventive treatment.

9. The repeated oral administration of massive doses of vitamin D has been found to cause a marked rise in the blood-calcium which can persist for about five days.

The observation suggests that the disease may also be prevented by this means by commencing the administration of vitamin D a few days before calving.

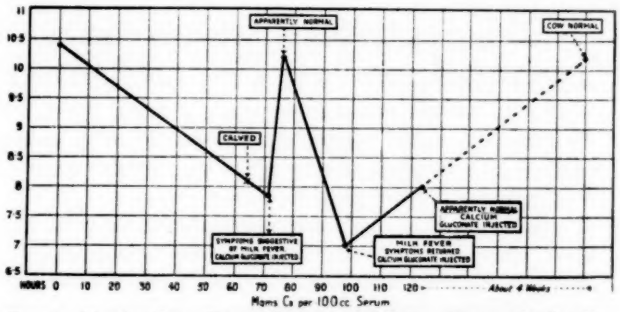
10. The blood-calcium values of normal sheep were observed. It would appear the normal variation of blood-calcium is greater in sheep than in cattle.

The association of acute hypocalcæmia with lambing sickness* has been determined, and the identity of this disease with milk fever established.

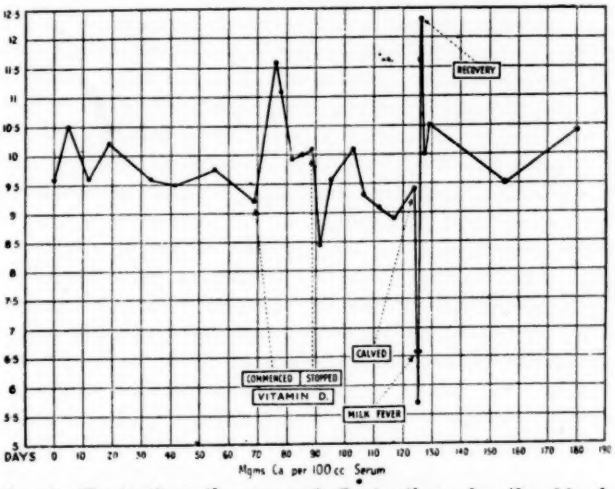
The known curative effects of mammary inflation in lambing sickness are also correlated with a rise in the blood-calcium values. In many cases the curative effect of subcutaneous injection of calcium has been tested; the treatment has resulted in rapid recovery.

11. The calcium values of normal horses were found to be considerably higher than those of cattle and sheep. In an examination of two cases of transit tetany in mares a pronounced hypocalcæmia was found. In one case of transit tetany, mammary inflation, and in the other, calcium injection was followed by complete recovery.

* This is not to be confused with the condition in this country known as stercoræmia, pregnancy disease, preparturient paresis of ewes, acidosis of pregnant ewes, etc. In this ailment there is not a lowering of the blood calcium level and neither udder inflation nor calcium injection is beneficial.—Ed. *Vet. Med.*



Graph illustrating the action of calcium gluconate in the prevention of milk fever.



Graph illustrating the normal fluctuations in the blood calcium level and the effects following the sudden administration of vitamin D. Note the calcium fall during the attack of milk fever.

Conclusions.

I. *The essential cause of milk fever is an acute blood-calcium deficiency.*

II. *The specific curative action of mammary inflation consists in raising the blood-calcium values.*

These conclusions are based on the following considerations:—

1. Milk fever is invariably associated with an acute hypocalcæmia.

2. The more severe cases correspond with the lower calcium values.

3. The fall in calcium is approximately coincident with the appearance of the symptoms.

4. Tetany is a symptom in severe cases of milk fever, and the occurrence of tetany is recognised as consequent upon pronounced hypocalcæmia.

5. Mammary inflation raises the level of blood-calcium in a normal lactating animal.

6. Mammary inflation elicits a marked rise in the level of blood-calcium in milk fever and cures the disease; the process of cure, as manifested in the disappearance of the symptoms, corresponds with the rise of the blood-calcium.

7. Injection of calcium, exclusive of other treatment, raises the blood-calcium concentration and cures the disease.

8. Milk fever in cows, lambing sickness in ewes, and transit tetany in mares are all rapidly cured by mammary inflation, and they are the only conditions in an examination of over 500 samples of blood in which an acute hypocalcæmia has been found.

It has long been recognised that the term "Milk Fever" is a misnomer, and from the foregoing conclusions I would venture to suggest that "Acute Parturient Hypocalcæmia" would be appropriate.

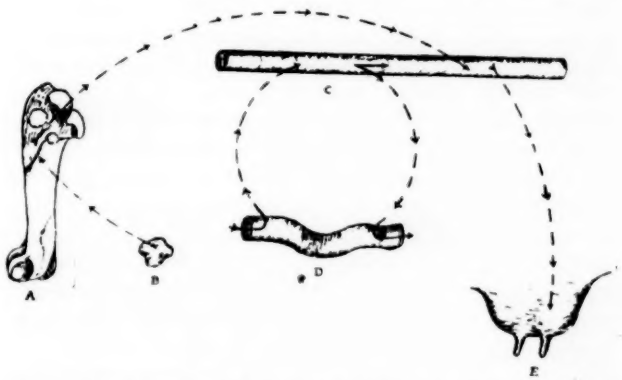
When it became apparent that the essential nature of the disease was a calcium deficiency, the writer sought for a form of calcium which could be injected subcutaneously.

As is well known, calcium chloride is so irritant when injected locally that intravenous injection forms the only means by which it may be directly introduced into the tissues. It was obvious that an intravenous injection of calcium could not be readily applied in all cases of milk fever. Frequently, when the case is comatose the animal is found huddled up in a narrow stall; or during the periods of convulsion, it may be impossible safely to introduce the needle into the vein. Unless the intravenous injection of calcium chloride be perfectly performed and all leakage into the surrounding tissue avoided, abscess formation and necrosis are the almost invariable results.

Again, while the direct injection of calcium into the blood stream rapidly raises the blood-calcium concentration, this high concentration tends to fall rapidly. Thus, while the intravenous injection of calcium frequently brings about very rapid recovery, relapses are liable to occur.

After considerable search and trial, it was found that calcium gluconate [$Ca\ (C_6H_{11}O_1)_2$] could be safely injected subcutaneously and intramuscularly, and with the co-operation of Mr. Oscar Stinson, M.R.C.V.S., of Appleby, Westmoreland, who carried out the early field experiments, the writer evolved a treatment which has since been practised on a considerable scale in Great Britain.

The calcium gluconate employed is that manufactured by Messrs. Sandoz, and is a neutral organic salt, prepared from calcium and gluconic acid. It contains no



A—Bone; B—Parathyroid; C—Blood vessel; D—Gut; E—Mammary Gland.

Calcium absorbed from the gut is carried to the blood stream and thence to the tissues. Heavy deposits are laid down in bone. Excess calcium in blood is mainly excreted by the gut. It is assumed that the parathyroid secretion converts the calcium in the bone into a readily assimilable form which is carried by blood to the soft tissues. Calcium being highly concentrated in colostrum, the commencement of lactation suddenly deprives the blood of large quantities of calcium which must be immediately replaced. This is affected by the parathyroid. In the case of parathyroid inefficiency at the commencement of lactation, the rapid loss of calcium in the milk causes an acute deficiency of blood calcium which cannot be quickly enough replaced by mobilization of calcium from the skeletal reserves and milk fever results.

sugar, neither can its oxidation produce sugar. On the contrary, the acid radical, from a physiological point of view, is inert, and the action of the salt depends exclusively upon the value of the calcium ion.

The preparation is produced both in the form of granules which are dissolved by the practitioner previous to the application of the treatment, or as an already prepared solution in sealed ampoules. The dosage varies widely and depends upon the severity of the attack. One to three ounces of the granules are dissolved in one to three pints of water. The salt should be dissolved in boiling water to ensure complete solution and, while the solution may be prepared at home previous to proceeding to the case, it is well to filter and reboil it for a few minutes before injection, and to allow it to cool to about 105° F.

The solution is injected in front and behind each shoulder—four points in all—in the proportion of, say, 200 c.c. in front and 400 c.c. behind. The sites of injection are well massaged so as partially to disperse the fluid.

I would advise practitioners who intend to practise the calcium treatment to begin by confining themselves to the use of the ampoules containing an already prepared solution. This need only be warmed to approximately 105° F. and injected at once.

I believe that this method of treatment can be regarded as at least equal in its specific efficacy to that of mammary inflation over which it possesses certain advantages, in so far that it obviates interference with the udder, a very important organ in the dairy cow; it causes no interference with milk secretion such as may be occasioned by mammary inflation; it is a rational treatment based on scientific principles, and thus gives the practitioner a certain prestige which he did not possess in practising the inexplicable treatment of mammary inflation.

The new treatment discourages the pernicious practice of home doctoring, mammary inflation being commonly practised by laymen, often with dire results. Messrs. Sandoz have agreed that no person other than a member of the veterinary or medical professions will be supplied with calcium gluconate.

On the other hand, a number of complaints have been received that the injection of calcium gluconate is sometimes followed by swellings that persist for some days, and even result in abscess formation. So far, we have been unable to find a definite cause for this unfortunate complication.

In a private communication, Mr. William Hepburn, M.R.C.V.S., Aberdeen, states that he has treated approximately 200 cases of milk fever with calcium gluconate alone. The results were uniformly successful and no untoward complications occurred with the exception of one case which developed an abscess at the site of injection. In this particular case the calcium was imperfectly dissolved.

It is curious that some practitioners have had no trouble, while with others it is the reverse.

It is, of course, necessary to ensure that the injection be made under aseptic conditions, and practitioners who follow a system such as that above indicated now find that the injection can be made without the occurrence of untoward sequelæ.

The practice of calcium injection in the *prevention* of milk fever is still in its experimental stage, but experiments indicate that, in those cows which are highly subject to attack, calcium gluconate in doses of about 200 c.c. of the ampouled solution injected immediately after calving and repeated 20 hours later provides an effectual means of prevention.

Calcium injection and mammary inflation may be combined with marked benefit in severe and relapsing cases, but the comparative value of the two treatments can only be assessed by time and experience.

At least it may be said that the calcium treatment is rational, in that it is based on scientific principles, and that its specific curative effects can be described as perhaps the most spectacular produced by a medicinal substance in any naturally occurring disease throughout the whole range of hominal or veterinary medicine.

In a previous paper[6] I have shown that the so-called "lambing sickness" of ewes also represents an acute hypocalcæmia; indeed, I believe it is identical in its essential pathology with milk fever. In this disease the injection of calcium (Sandoz) has also proved of specific efficacy. I have had no opportunity of determining the blood-calcium concentration in so-called "eclampsia" of the parturient sow and bitch, but that these conditions are allied to milk fever of the cow may be assumed from the fact that in the several cases treated by calcium injection which have come within my notice, all have shown rapid and complete curative response.

I have records of a few cases of transit tetany in mares in which calcium injection has been applied; the recoveries in each case were rapid, but as a number of cases of transit tetany recover spontaneously, further data are required before definite conclusions can be drawn.

But it is in yet another diseased condition that calcium gluconate has been found of especial value, and it is to this condition that I would venture to direct the attention of American veterinarians.

In Scotland we meet with a disease clinically indistinguishable from parturient milk fever in cows at any stage of lactation. These cases are generally described as "delayed milk fever," or "atypical milk fever," but similar conditions also commonly occur in dry cows and in bullocks; these are often referred to by the generic term "grass staggers." The name is probably applied to a number of disease entities of similar clinical manifestation, but a considerable proportion of these cases respond to calcium injection as readily as do typical cases of parturient milk fever.

It may not be too much to hope that the discovery of the specific efficacy of calcium in milk fever has permitted us to enter a new field of cattle pathology.

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Eleventh International Veterinary Congress, London,

August, 1930.

(*Continued from page* 118.)

The Nature of Milk Fever.

By Professor J. R. Greig, ph.d., m.r.c.v.s.
Director, Animal Diseases Research Institute, Moredun, Edinburgh.

Gives a list of references of recent theories in connection with milk fever and discusses the circumstances which led up to the origin of the author's hypothesis of parathyroid deficiency resulting in a fall in blood calcium (hypocalcæmia). The essential points in the hypothesis are:—

1. That parathyroid deficiency results in the accumulation of toxic substances such as guanidine and a fall in blood calcium, the fall in calcium being accentuated by lactation.
2. That the curative effect of mammary inflation is due to:—
   (*a*) Stimulation of adrenal secretion and consequent oxidation of toxins and/or
   (*b*) Retardation of milk formation and prevention of further exchange of calcium from the blood to the milk.
3. That the preventive value of restricted withdrawal of milk after calving is due to this procedure conserving the concentration of calcium in the blood.

The calcium content of a normal milch cow is 9 mgms. to 11 mgms. per 100 c.c. serum, there is no difference in calcium values in parturient cows as compared with those in advanced lactation or even with bullocks.

The beginning of lactation is accompanied by a transient fall in Ca. The marked fall in blood calcium in cases of milk fever is very significant: the degree of Ca. deficiency appears to be in direct proportion to the severity of the attack.

The author states that he was unable to detect any comparable fall in blood calcium concentration in bovine diseases other than milk fever. A comparatively slight but notable hypocalcæmia was observed to be associated with debilitating diseases such as tuberculosis and Johne's disease and also with some cases of acute digestive disturbance and recent abortion. The object was to dispose of the suspicion that the hypocalcæmia might only occur as a concomitant of milk fever.

Mammary inflation has the effect of preventing the exchange of calcium from the blood to the gland acini and there is reason to believe that the calcium, which is heavily concentrated in the gland, is forced back into the blood again.

In a series of a 100 cases of milk fever treated with injections of calcium gluconate (Sandoz) only three failed to respond satisfactorily.

An acute hypocalcæmia is present in the condition known as lambing sickness of ewes, which responds readily to mammary inflation.

Apparently transit tetany in lactating mares is a condition analogous to bovine milk fever and responds to injections of calcium and mammary inflation.

The author illustrates his article with a series of excellent photographs demonstrating the successful results obtained by the injection of calcium gluconate in advanced cases.

W. F. A.

Milk Fever.

By Dr. Pierre A. Fish.
Dean of New York Veterinary College at Cornell University, Ithaca, New York.

The most important change in the blood-picture of milk fever cases is the greatly reduced amount of calcium and inorganic phosphates. The Ca. × P. product of the normal cow is five times greater than that found in cases of milk fever.

The value of the diet is of great importance: a cow may lose Ca. from her body on account of a shortage of phosphorous in her diet, thus an improper ration in conjunction with other conditions may be a factor in predisposing a cow towards an attack.

Calcium deficiency, according to Dryerre and Greig, might be due to a disturbance in the parathyroids, which are the Ca.-regulating glands. Experiments on dogs, however, have shown that when the parathyroids are removed a decrease in calcium occurs but the phosphates are increased, which is contrary to what is found in cases of milk fever. This difference may result in releasing the parathyroids from the suspicion of being responsible for milk fever phenomena.

Phosphoric acid enters into the composition of every cell in the body and is thus an important factor in development and normal oxidation of carbohydrate and the production of muscular energy. Calcium is essential for bone formation.

Ca-ions must always be in a certain proportion to the sum of the Na.- and K.-ions, otherwise the normal permeability of the cell surface cannot be maintained. The first tissue to react when this ratio is upset is the cerebellar and the power of the animal to orient and equilibrate itself in space is lost. Muscular tetany is generally conceded to be due to calcium deficiency, but loss of co-ordination and collapse is due to this upset in the Ca.- Na.- K.-ions balance acting on the cerebellar nervous tissue. The hypoglycæmia seen in a large number of cases appears to result from deficiency of blood-phosphates.

Treatment.—Later knowledge is leading us to a more rational method of treatment than by udder inflation which, however, has proved its effectiveness and has been universal. Efforts have been directed to assess the Ca. and phosphate deficiency by means of calcium preparations. Interest has been focussed entirely on the Ca. deficiency, but the phosphate deficiency, which is almost as great, may be equally important since their function is now diversified.

A salt which would meet both needs of Ca. and phosphate is available in the form of calcium glycerophosphate. It is less soluble than other calcium preparations and heating increases this insolubility. To a solution of 30 gms. of the salt in 1 litre of water, 25-30 gms. of glucose should be added; this renders the Ca. salt more soluble and prevents venous sclerosis; the mixture represents a 3 per cent. sol. of the salt and the intravenous injection of 1 litre introduces 30 gms. of the salt, which is the suitable dosage.

The Veterinary Record.
February 7th, 1931.

A Generous Gesture.

The report of the proceedings of the January Quarterly Meeting of Council, R.C.V.S., which we publish in this issue, reveals a timely and generous gesture on the part of a Fellow of the College, who desires to remain anonymous, which we feel will commend itself to many of our readers as an example to be followed with alacrity, in view of the heavy financial burdens which the Royal College has to bear upon what must be regarded as a totally inadequate income.

The report of the Finance Committee reveals that the Fellow to whom we have referred has voluntarily increased his Annual Fee to the College from one to three guineas. He has done this because it has been brought to his notice how very inadequate is the income of the College, and we are convinced that, were the financial difficulties of our governing institution more generally known, such a pleasing instance of generosity towards the body to whom we all owe so much would be multiplied many times. Indeed, we fear that it is not generally recognised amongst the profession how many and onerous are the duties imposed upon the Council of the College. We know of no professional institution in the country having such heavy responsibilities with so restricted an income. The Dental Board has fewer duties than the Royal College of Veterinary Surgeons, but every dentist registered under the new Dental Act must pay an annual subscription of £4. If he does not pay it before the 31st January, his name is removed from the Register and his right to practise is taken away. The income of the Dental Board is probably sixteen times that of the Royal College, and its prestige and power are enormously enhanced in consequence. Solicitors in the country have to pay £7, and in London £9, for their annual practising certificate. Chartered accountants and chartered secretaries pay three or four times the fee demanded of veterinary surgeons, and the Councils of these professions are free from all financial anxieties. Many workmen's associations, indeed, are entitled to receive a higher subscription *per capita* than the Royal College receives from its members. The Finance Cimmittee is, at the moment, faced with an overdraft of about £1,500, while it has to meet calls for expenditure on repairs to the building which it must postpone for lack of funds. Even the small expense of purchasing a few text books for the Library has had to be deferred. There is, without doubt, an imperative duty upon every member who desires the advancement of his profession, and who can afford it—and there must be many—to follow the example referred to above. We have enjoyed for long the fruits of the great efforts made by our predecessors. Can we not do our share in return to relieve the burdens of our successors?

We cannot leave the general subject of the proceedings of Council, R.C.V.S. without reference to another feature almost equally calculated to stir the emotion of generosity. It is, indeed, inconceivable that prompt response will be withheld by the general body of the profession from the effort which is to be made to raise, by subscription from its members, the sum required to complete the great design sought by Sir Frederick Smith in the publication of the Fourth Volume of his monumental work, "The History of Veterinary Literature," thus bringing his history down to the year 1869. The manuscript awaits publication, and the Committee which has been charged by the College with prosecuting what all must regard as the fulfilment of a bounden duty to the great veterinary historian of our era, can surely look to the provision of sufficient funds not only for this essential activity but for the admirable supplementary purpose of securing a worthy portrait of one whom it will be both the delight and the privilege of the profession thus to honour.

In laboratory tests calcium glycerophosphate, as well as the chloride and gluconate, coagulate blood *in vitro*; consequently, an intravenous injection should be made slowly (10 minutes to inject 1 litre of solution). Glucose added to the glycerophosphate solution renders it isotonic and the injection serves to stimulate the circulation by increasing the volume of the blood. It is regretted that the exigency of the situation, in submitting this paper within specified time limits, necessitated a premature report on the treatment of such a limited number of patients.

W. F. A.

Imperial Cancer Research Fund.

At a meeting of the Governors of the Royal Veterinary College, London, held on January 29th, Dr. F. C. Minett, Director of the Research Institute in Animal Pathology at the College, was unanimously elected as the representative of the College on the Executive Committee of the Imperial Cancer Research Fund, in succession to Sir John M'Fadyean.

Royal College of Veterinary Surgeons.

Quarterly Meeting of Council.

Proposed Memorial to Sir Frederick Smith.

A Quarterly Meeting of the Council of the Royal College of Veterinary Surgeons was held at 10, Red Lion Square, Holborn, London, on Friday, January 9th, 1931, with Sir John M'Fadyean, President, in the chair.

The following Members of Council were present:—Major J. Abson, Dr. O. Charnock Bradley, Lieut.-Colonel J. W. Brittlebank, Professor J. B. Buxton, Mr. J. C. Coleman, Professor J. F. Craig, Major G. W. Dunkin, Professors S. H. Gaiger, F. T. G. Hobday, Messrs. J. Holroyd, R. Hughes, G. H. Livesey, J. W. McIntosh, G. P. Male, William Nairn, Major D. S. Rabagliati, Dr. J. Share-Jones, Dr. A. L. Sheather, Lieut.-Colonel P. J. Simpson, Captain R. Simpson, Major A. Spreull, Mr. T. F. Spencer, Colonel G. K. Walker, Dr. A. W. Whitehouse, Mr. J. Willett, Professor G. H. Wooldridge and Captain W. G. Wragg.

The President: Before we start the formal business of the meeting, I have the pleasure of wishing you all a happy New Year. (Applause.)

The minutes of the last meeting were taken as read, and confirmed.

Obituary.—The Registrar read the list of Members and Fellows of the College, notification of whose death had been received during the past quarter.

Apologies for Absence.—The Secretary: There are apologies for absence from Colonel Young, Mr. J. Clarkson and Professor Macqueen, the absence of the two last-named being due to illness.

Mr. McIntosh: I think the Council would like to send letters of regret to Mr. Clarkson and Professor Macqueen at the cause of their absence, expressing our hope for their speedy recovery.

The President: I am sure that will commend itself to all of us. (Agreed.)

Correspondence.—The Secretary: I have received a letter from Dr. Stang. "Dear Dr. Bullock, I send you best wishes for Christmas and the New Year, and shall be pleased to hear that you have submitted these wishes also to the Members of the Royal College of Veterinary Surgeons."

I have also received letters from the following recipients of the Hon. Associate Diploma—Dr. Kjerrulf and Colonel Piché—thanking the Council for the honour conferred upon them.

There is a letter from Professor Russell Greig, asking the Council's acceptance of a framed photograph of the bust of Claude Bourgelat, founder of the first Veterinary school at Lyon.

The President: I am sure you will agree that it would be only right and proper that we should return our grateful thanks to Professor Russell Greig for the trouble he has taken in securing the photograph mentioned. (Hear, hear.)

The Secretary: There are invitations addressed to the Council to send representatives to the 17th Annual Conference of the National Association for the Prevention of Tuberculosis at Margate on June 25th-27th, and to the Royal Institute of Public Health's Congress at Frankfurt on May 19th-24th. Also to the Royal Sanitary Institute's Congress at Glasgow on July 4th-11th.

The President, or his nominee, was appointed to attend the meetings at Margate and Glasgow.

The Lord Mayor.—Colonel Brittlebank: May I ask leave to bring forward a small matter, for which I ought to have asked your permission earlier? As I cannot be present at the close of the meeting I would like to mention it now. It would, I think, be a graceful act on the part of this Council to offer its congratulations to the present holder of the Lord Mayoralty of the City of London, Alderman Sir Phené Neal. Sir Phené Neal has been a constant friend of the veterinary profession for many years. We have very lively recollections of the wonderful hospitality which the City of London offered us during the meetings of the International London Congress. I feel sure you will excuse my trespassing upon your time by asking you to pass a resolution congratulating the present holder of that very distinguished position of the Lord Mayoralty of London.

Mr. McIntosh: I should like to second that.

The President: I can confidently say that we shall all be in agreement with this resolution. (Hear, hear.)

The resolution was carried unanimously.

Admissions to Membership.—The Registrar read the list of Members admitted since the previous quarterly meeting.

Reports of Committees.

Finance and General Purposes Committee.

Colonel Simpson read the report of the meeting held on Friday, January 9th, as follows, and it was unanimously adopted:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

The Treasurer submitted his financial statement for the Quarter, showing a balance in hand of £589 14s. 1d. and liabilities amounting to £246 11s. 5d.

The Treasurer's Statement was approved, together with the payment of liabilities.

Annual Fees.—(*a*) The Secretary reported that a Fellow of the College who wished to remain anonymous, had instructed his bank, in view of the financial condition of the College, to increase the amount of his Annual Fee to £3 3s. and that sum had already been received for the present year. It was resolved:—

"That the thanks of the Council be addressed to the member for his action, which is much appreciated."

(*b*) The Secretary reported the cases of 17 members whose Annual Fees were in arrear and he was instructed to take proceedings through the County Court to recover the fees in ten cases.

A report was presented by the Treasurer showing that during the coming quarter it will be necessary to overdraw the account at the Bank to approximately £1,500.

The Treasurer was authorised to arrange for the necessary overdraft.

The Architect's report on the suggested repairs to the staircase and the fabric of the building, together with estimates, was received. The matter was left in the hands of a Special Sub-committee, with instructions to obtain competitive estimates, the Sub-committee to consist of the Chairman, Treasurer, Major G. W. Dunkin and Mr. J. Willett.

The Secretary reported that, with the consent of the Treasurer, a new stove had been provided in the kitchen and necessary decorations carried out for the sum of £31 10s. The action of the Treasurer was approved.

The Secretary reported that a grant of one hundred pounds had been made by the Goldsmiths Company to the War Memorial Library. The Treasurer was authorised to invest this sum in a suitable security to be added to the Library Endowment Fund.

Examination Committee.

Professor Buxton read the report of a meeting of the Examination Committee held on Thursday, January 8th, 1931, as follows, and moved it adoption, Mr. Male seconding the motion :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Letters were received from the Scottish Education Department regarding the standard of examination for the Leaving Certificate, and the information furnished was considered satisfactory.

Reports on December Examinations.—*(a) Membership.*—Reports of Chairmen of Board of Examiners, Delegates and Local Secretaries were received.

The question was raised by the delegate at Liverpool as to the procedure to be adopted in announcing results of examinations, and the Secretary was instructed to communicate with the Local Secretary on the matter.

It was resolved " That the thanks of the Council be conveyed to those persons and institutions who had rendered assistance in the conduct of the examinations."

(b) Fellowship.—The Secretary reported that three entries had been received for the Fellowship Diploma, and submitted the reports of the examiners in each case. It was resolved " That the Fellowship Diploma be conferred on Eric Maxwell Robinson for his thesis entitled ' The Serological Diagnosis of Trypanosomiasis in the Domesticated Animals.' "

(c) D.V.S.M.—The examiners' report was received on the examination held in London in December, which showed that of six candidates entering the following were successful : T. Johnston, W. B. McAleer, J. D. McLanchlan. The examiners' recommendation that the unsuccessful candidates be required to attend a further course of instruction for at least six weeks in the group or groups in which they were rejected, was approved.

Education certificates Nos. 3617, 3619-3648, 3651-3662 were submitted and approved.

Applications from the following candidates for exemption under By-law 62 were acceded to : Nos. 3618, 3649, 3650.

Applications from two students rejected in one subject only at the December examinations were received, requesting to be allowed to pass to the next year's course and to take the required subject at a subsequent examination.

It was resolved " That the applications be not acceded to."

An application was received from a candidate who was rejected at the D.V.S.M. Examination in 1928, for permission to present himself for re-examination without further attendance at an affiliated school.

It was resolved " That in view of the special circumstances of the candidate the application be acceded to."

An application was received from the holder of the diploma of the Punjab Veterinary College, Lahore, for exemption under Bye-law 95. It was resolved " That the application be not acceded to."

An application was received from the Director of the Egyptian Education Office for the recognition of the diploma of the Cairo School of Veterinary Medicine as qualifying candidates for exemption under Bye-law 95. The application was accompanied by particulars of the course and a list of the teaching staff and examiners. After careful consideration it was resolved " That the application be not acceded to."

The Secretary reported that no candidate sitting at the final examination during the past session had qualified for the award of the Williams Memorial Prize.

The appointment of the following teachers as internal examiners was approved :—

Dr. Charles H. O'Donoghue, Biology, Edinburgh.

Dr. Dilling, Materia Medica, Liverpool University (during the absence of Professor Marsden).

The question was raised as to the meaning of Bye-law 78 in relation to paragraph 11 of the Instructions to Examiners. It was resolved " That Bye-law 78 be amended so as to give effect to the rule laid down in Instruction 11."

Dr. Bradley gave notice that he would submit the necessary motion at the next meeting of Council.

An application was received from the Rector of the University of Pretoria requesting that the consideration of the Council be given to the question of reciprocity of recognition of the diploma of M.R.C.V.S. and that of B.V.Sc. of the University. After discussion, it was resolved " That the application be referred to a Special Sub-committee for consideration and report, the Sub-committee to consist of the President, Chairman, and Dr. Bradley."

A Sub-committee, consisting of President, Dr. Bradley, Professor Buxton, Professor Gaiger, Professor Share-Jones, Colonel Walker, was appointed to make recommendations for the award of the Steel Memorial Medal for 1931.

Dr. Whitehouse : I notice that in announcing the results of the Membership and Fellowship Diploma examinations the names are given, but not the names of those passing the examination for the Diploma in Veterinary State Medicine. I think they should be stated as a matter of record.

The President : Notice will be taken of that.

A further question was raised as to a verbal correction, but the President ruled that there was no inaccuracy in the Report, which was thereupon adopted.

Special Examination Committee.

Professor Buxton read the Report of a Special Examination Committee held on Thursday, January 8th, as follows,

Report of Curr Com

The Sub-committee has held two meetings, a nside Examination Committee, has drawn up for the App Exan of Instruction and Examinations for the five years' c

Teaching.

First Year.

I.—Botany, Zoology.
II.—Chemistry, Physics.
III.—Animal Husbandry, Part. I.

Second Year.

I.—Physiology, Biochemistry.
II.—Histology, Embryology.
III.—Anatomy.

Third Year.

I.—Anatomy.
II.—Pharmacology and Therapeutics, Practical Pharmacy.
III.—Animal Husbandry, Part II.

Fourth Year.

I.—(A) Pathology (including Morbid Anatomy, Pathological Hæmatology, Bacteriology, Mycology, Protozoology and Helminthology).
(B) Clinical Pathology.
II.—Principles and Practice of Veterinary Medicine (including Clinical Parasitology, Protozoology, Entomology and Helminthology).
III.—(A) Principles and Practice of Veterinary Surgery (including Clinical and Operative Surgery, Surgical and Applied Anatomy, Examinations for Soundness and Pathological Shoeing).
(B) Obstetrics.
IV.—Clinical Instruction.

Fifth Year.

I.—(A) Principles and Practice of Veterinary Medicine (including Clinical Medicine and Parasitology).
Special Therapeutics.
(B) Meat Inspection.
II.—(A) Principles and Practice of Veterinary Surgery (including Clinical and Operative Surgery, Surgical and Applied Anatomy, Examinations for Soundness, Pathological Shoeing).
(B) Obstetrics.
(C) Jurisprudence.
iii.—Clinical Instruction.

and moved its reception and adoption, Colonel Brittlebank seconding the motion :—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

The following report of the Curriculum Sub-committee was submitted :—

[*See below for commencement of this report.*—Ed.]

Rejections in One Subject Only.

The Sub-committee considered the drawing-up of regulations to provide that students who have failed in one subject only may pass to the next year's course of instruction conditional on their passing in the required subject at a subsequent examination.

To make this provision Professor Whitehouse submitted a scheme for re-organising the examinations which, after slight verbal amendments, was approved as follows and recommended for adoption :—

Scheme for Re-organisation of Professional Examinations.

(1) The December Examinations to be discontinued, except for the Final Year.

(2) General Examinations to be held in July as at present.

(3) Special Examinations to be held in September or early October.

(4) At the General Examinations examiners to divide candidates into three classes :—

(*a*) Pass students—as at present.

(*b*) Rejected students—not to be eligible for re-examination until the following July.

f Curr Committee.

ngs, a nsideration of memoranda by members of the he App Examination Committee the following outline Scheme

Examination.

First Year.

I.—Botany, Zoology.
II.—Chemistry, Physics.
III.—Animal Husbandry, Part. I.

Second Year.

I.—Physiology, Biochemistry.
II.—Histology, Embryology.

Third Year.

I.—Anatomy.
II.—Pharmacology and Therapeutics, Practical Pharmacy.
III.—Animal Husbandry, Part II.

Fourth Year.

I.—(A) Pathology (including Morbid Anatomy, Pathological Hæmatology, Bacteriology, Mycology, Protozoology and Helminthology).
(B) Clinical Pathology.

Fifth Year.

I.—(A) Principles and Practice of Veterinary Medicine (including Clinical Medicine and Parasitology).
Special Therapeutics.
(B) Meat Inspection.
II.—(A) Principles and Practice of Veterinary Surgery (including Clinical and Operative Surgery, Surgical and Applied Anatomy, Examinations for Soundness, Pathological Shoeing).
(B) Obstetrics.
(C) Jurisprudence.

(*c*) Referred students—examiners to have full discretion as to placing any candidate in this class who has failed in one subject only, the consideration guiding them being the chance of his success after private study during the summer vacation. The candidate to be provisionally credited with the subjects in which he has passed and to be informed of the subject in which he is to prepare himself for re-examination.

(5) At the Special Examination the candidate to be examined only in that subject in which he was unsuccessful in July. The examiners to divide the candidates into two classes :—

(*a*) Pass students—to go into the next year or receive their diploma, as the case may be.

(*b*) Rejected students—these (except in the case of Class D), to lose the subjects with which they have been provisionally credited, and to take the whole session's instruction again before being eligible to re-present themselves for examination in the following July.

(6) In the Final Year, students to be required to present themselves at the General Examinations for the whole examination. Students rejected in one subject only to be placed in one of two classes :—

(*a*) Definitely rejected in one subject. These to be required to put in a further term's attendance before re-examination in the following December.

(*b*) Referred students, *i.e.*, those who pass definitely in one subject, but are on the border-line in the other; these to be allowed to present themselves for re-examination in the required subject at the Special Examinations in September or early October, or at their option in the following December.

(7) The Special Examinations and the December Examinations for Final Year students to be held at one Centre only.

It was resolved :—

(*d*) That the second part of the report proposing the re-arranged as follows :—

I.—(A) Pathology (including Morbid Anatomy, Pathological Hæmatology, Bacteriology, Mycology).
(B) Clinical Pathology.
II.—Systematic Parasitology (including Protozoology, Helminthology, Entomology).

(*b*) That the examination for the first year be re-arranged as follows :—

Part I.— I.—Botany, Zoology.
II.—Chemistry, Physics.
Part II, III.—Animal Husbandry, Part I.

Part I must be passed before proceeding to the second year; Part II may be passed at any time within the first two years.

(*c*) That with the above amendments the first part of the report be approved.

(*d*) That the second part of the report proposing the re-organisation of the professional examinations be referred to the authorities of the affiliated schools for their observations."

Professor Share-Jones : It is not my intention to move an amendment to this Report, but I think there is one fact which ought to be made clear, and that is the introduction of a special table in Parasitology, which was carried in the meeting by a majority of one vote. There was a considerable divergence of opinion concerning it. Those who, like myself, felt that it should not be carried were impressed very much by the definite advice given by yourself, Sir, Professor Buxton, and especially by two of the most experienced professors in medicine that we have in this country, namely, Professor Craig and Professor Wooldridge, the feeling being that the introduction of this table would operate against the standing of the subject of medicine as being a major subject in our licence to practise. In the

face of that expression of authoritative opinion, I regret very much that I cannot vote for this Report; but having regard to the fact that the Committee has given so much time to the matter and so much thought, I feel that I should not move an amendment. I content myself with retaining the position which I held yesterday on an educational matter which involves a principle which cannot possibly vary from day to day in order that I may retain a free hand at any time when the matter may come up for consideration again. I shall not vote for the Report, but I shall not vote against it.

The President: I think perhaps it is well that attention should be called to the fact that the admission of a new subject, Parasitology, will involve the appointment of additional examiners—two, I suppose.

The Report was then adopted.

Joint Meeting of Examination and Parliamentary Committee.

Professor Buxton read the Report of the meeting held on January 7th, and moved the reception and adoption. Colonel Brittlebank seconded the motion, which was carried.

The report is as follows:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

A scheme for the provision of extra-mural clinical instruction drawn up by the principals of the schools was submitted and considered. Several verbal amendments were made, and it was resolved—

"That the scheme be approved as follows:—

1.—Each affiliated veterinary college to elect a panel of practitioners to be recognised as extra-mural teachers.

2.—Students to be allocated to members of the panel.

3.—The authorities of the affiliated school to require each candidate before presenting himself for his Final Professional Examination to produce a certificate or certificates from one or more members of the panel of extra-mural teachers to the effect that subsequent to passing the First Professional Examination:—

(*a*) He has satisfactorily attended cases of disease and/or accident and has had experience in general practice among the larger farm animals for a period of not less than six months.

(*b*) He has attended six cases of parturition in the larger farm animals.

4. Students to be required to keep records of cases seen during this period and to produce casebooks attested by the extra-mural teacher, to the authorities of his college and to the examiners of the Royal College of Veterinary Surgeons if and when required to do so."

Registration Committee.

The Secretary read the Report of a meeting of the Registration Committee which was held on January 7th, as follows:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Cases.

2074. P.D.S.A.—The Secretary read correspondence in this matter, including a letter from the Secretary of the National Veterinary Medical Association transmitting a resolution received from the Derbyshire Division. The Secretary was instructed to reply that the matter had received the careful consideration of the Council for some time past on the lines suggested. The general question was then considered and it was resolved that the matter be left in the hands of the National Veterinary Medical Association.

2074A. Edmunds, F. T., and Johnson, J. B. Using title "Veterinary Assistant" and "Assistant Veterinary Dispenser." It was resolved to institute prosecutions in this case.

N. 22. Cole, W. B. Described as "Veterinary Surgeon" in the press. A satisfactory explanation was received in this case.

N. 26. Hodgkinson, P. H. "Hon. Veterinary Surgeon." Correspondence with the Ladies' Kennel Association and the Kennel Club was submitted which was considered satisfactory. The Secretary was, however, instructed to communicate further with the Kennel Club to suggest that unqualified persons who are permitted to act as examiners of dogs should not be given a title in contravention of the Veterinary Surgeons' Act.

N. 33. "Canine and Feline Specialist." This case was held over for further evidence.

N. 35. Using title "Veterinary Surgeon." This case was held over for further evidence.

N. 36. Giddins, V. "Veterinary Surgeon." This case was withdrawn by the complainant on a satisfactory explanation having been submitted.

N. 37. Rigby, S. "Canine and Feline Veterinary." A satisfactory undertaking was received in this case.

N. 38. "Late Veterinary Inspector, U.D. London." An undertaking was received in this case, but the Secretary reported the receipt of a further complaint. It was resolved to institute a prosecution if satisfactory evidence is obtainable.

N. 40. Barnes, A. Using title "Bird and Dog Doctor." The Solicitor reported a prosecution in this case resulting in the defendant being ordered to pay 25s. costs and to remove the notice board.

N. 41. Greenfield, G. It was resolved that there was no case.

N. 42. Using title "Veterinary Specialist." It was resolved to institute a prosecution in this case if sufficient evidence is obtainable.

The Secretary submitted correspondence and was instructed as to the replies to be sent.

The President moved its adoption, and the Report was adopted.

The President: I now move that the Seal of the College be attached to the orders for prosecution.

Colonel Brittlebank: I second that.

The motion was carried.

The Secretary then read the following Report of a *Meeting of the Registration Committee held on January 8th.*

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Cases.

No. 2084. Employment of unqualified assistant. A letter was received from Mr. Percy Robinson, Solicitor to this member, giving an undertaking that the offence against the Bye-law in question had now been discontinued. It was resolved to recommend that the undertaking be accepted and that no further action be taken.

No. 2430. Conduct. The Secretary reported that this member was now deceased and the case was struck out.

No. 2455. (1) *Advertising.* As no further evidence had been received on this complaint, the case was struck out.

(2) *Conduct in Relation to Purchase of Practice.*—Further correspondence in this matter was submitted and the Secretary was instructed to communicate with the member expressing the Council's disapproval of the manner in which he had conducted the negotiations.

No. 2459. Alleged supersession. A further explanation in this case was received which was considered satisfactory and the case was struck out.

No. 2461. Advertising. The Secretary was instructed to communicate with this member and to point out the undesirability of his action.

No. 2462. Advertising. This case was deferred pending the receipt of a reply from the member.

2463. *Veterinary Advisory Officers.*—A copy of a resolution passed by the North Wales Division of the National Veterinary Medical Association was considered in which it was submitted that the duties prescribed for, and enjoined upon, veterinary advisory officers cannot be carried out without breaking the rules of professional etiquette governing all members of the Royal College of Veterinary Surgeons. It was resolved—

"That a letter be addressed to the Ministry of Agriculture pointing out that this question has been raised and that as it is understood that the conditions of service of veterinary advisory officers are about to be revised, the Council would be glad to receive information with regard to the duties which are to be allocated to these officers before giving further consideration to the question raised."

Correspondence was submitted and the Secretary was instructed as to the replies to be sent.

Procedure.—The following report of the Procedure Sub-Committee, dated January 7th, was read and approved:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

The draft Standing Orders on Procedure were reconsidered, and after several verbal amendments had been made were approved for presentation to the Council for adoption.

The President moved its adoption, which was carried.

Parliamentary Committee.

Colonel Brittlebank read the Report as follows:—

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

A letter was received from the Ministry of Agriculture with regard to the rate of fees charged by veterinary surgeons. The reply sent by the Secretary was approved.

A request was received from the National Milk Publicity Council for the nomination of a representative of the College on the Council for the forthcoming 12 months. Colonel J. W. Brittlebank was nominated representative of the College on the National Milk Publicity Council.

Irish Free State Agreement.—A letter was received from the Dominions Office announcing that the agreement between His Majesty's Governments in the United Kingdom and the Irish Free State regarding the registration of veterinary surgeons had now been signed on behalf of both Governments. A copy of the Veterinary Surgeons Bill containing as the first Schedule a copy of the Agreement was submitted, and it was resolved:—

"(*a*) That the matter be referred to a Special Sub-Committee for consideration, with power to act.

"(*b*) That the Committee be constituted as follows:—Sir John M'Fadyean, Colonel J. W. Brittlebank, Dr. O. Charnock Bradley, Professor J. B. Buxton, Captain W. G. Wragg."

Parliamentary Bills.—The following Parliamentary Bills were submitted:—

(*a*) The Protection of Dogs Bill.
(*b*) The Coal Mines (Protection of Animals) Bill.
(*c*) The Slaughter of Animals Bill.
(*d*) The Pharmacy and Poisons Bill.
(*e*) The Exportation of Horses Bill.

It was resolved:—

"(i) *Coal Mines (Protection of Animals) Bill.*—That the action of the Secretary in drawing the attention of the supporters of this Bill to the amendments recommended by the Council be approved.

"(ii) *Slaughter of Animals Bill.*—That the Secretary be instructed to draw the attention of the Ministry of Health to the objectionable provisions contained in Clause 4 and to urge the introduction of an amendment. The Secretary was instructed to send a copy of the letter to the Ministry of Health, also to the Ministry of Agriculture.

"(iii) That no action be taken with regard to the other Bills."

Veterinary Advisory Officers.—(*a*) The Secretary read a letter addressed by him to the Ministry of Agriculture on October 24th, 1930, to which an acknowledgment only had been received.

It was resolved—

"That the Secretary be instructed to press for a reply, and that the matter be left in the hands of the President and Chairman for further action."

(*b*) A copy of a resolution passed by the North Wales Division of the N.V.M.A. was submitted, and referred to the Registration Committee for consideration.

R.S.P.C.A. Enquiry re Poisoning of Animals by Prussic Acid.—The Secretary submitted correspondence on this matter, which was approved.

Agricultural Research Council.—The Secretary read the letter he had addressed to the Ministry of Agriculture urging that the proposed Agricultural Research Council now in course of formation should include at least two persons who are able to speak with authority on veterinary pathology and practice, together with a letter from the Ministry stating that the views of the Council on the matter would be brought to the notice of the Committee of the Privy Council responsible for the appointment of the Agricultural Research Council.

Poisons and Pharmacy Acts.—A copy of the report of the Departmental Committee on the Poisons and Pharmacy Acts was submitted, from which it appeared that a new Poisons Board was to be formed.

It was resolved—

"That representations be made to the Home Office urging the appointment of a representative of the veterinary profession on the Board."

It was resolved that Messrs. Sherwood and Co. be re-appointed Parliamentary Agents.

It was resolved that the Secretary be authorised to subscribe to Parliamentary Debates during the current session.

Public Health Acts.—A letter was received from the Secretary of the N.V.M.A. calling attention to the appointment of a Committee by the Minister of Health for the purpose of considering enactments relating to Local Government and Public Health and the necessary amendment thereof.

A resolution passed by the N.V.M.A. at its meeting on January 5th, 1931, was also submitted suggesting the appointment of representatives of the Royal College to confer with a Committee of the Association consisting of Mr. J. C. Coleman, Professor J. B. Buxton, Mr. G. P. Male and Dr. A. W. Whitehouse. It was resolved—

"That the suggestion be approved, and that the following be appointed a Committee to confer with the Committee of the Association and to report to this Committee in due course: Colonel J. W. Brittlebank, Captain R. Simpson, Colonel T. Dunlop Young and Captain W. G. Wragg."

He moved its adoption. Mr. Coleman seconded the motion, which was carried.

Library and Publication Committee.

Mr. Livesey read the following report of a meeting of the Library and Publication Committee, as follows, which was adopted.

The minutes of the previous meeting, having been printed and circulated, were taken as read and signed as correct.

Librarian's Report.—The Librarian reported that during the past Quarter the Library had been visited by 38 members and that 100 books had been sent out on loan, nine of which had been asked for by the National Central Library. The binding of current periodicals and other Journals was being continued.

The Librarian's Report was approved.

Presentation.—The Librarian reported the list of volumes, periodicals, reprints and reports presented to the Library during the past Quarter, which included the following works:—

By Major J. G. McGregor: "Matière Medicale raisonnée" (Bourgelat).

By Sir John M'Fadyean: Historical Description of German Veterinary Schools. (Presented by Dr. Reinhold Schmaltz, Honorary Associate of the College).

By Mr. G. A. Tomlin: "Five Hundred Points of Good Husbandry." (Tusser).

By Dr. Fred Bullock: "Handbook for Veterinary Surgeons." Second edition.

It was resolved:—

"(*a*) That the grateful thanks of the Library Committee be accorded to Major McGregor, Sir John M'Fadyean, Dr. Schmaltz, and Mr. Tomlin for their very valuable gifts.

"(*b*) That the usual letters of thanks be addressed to the remaining donors."

Purchases.—The following report was received from the Library Sub-Committee, dated December 19th, 1930:—

The Sub-Committee has considered a list of books and

periodicals submitted by the Librarian, and recommends the following for purchase :—

The Annual Scientific Reports of the Cancer Research Fund; "Genetics of the Horse" (Crew), 5s.; "Die Parasitaren und sonstigen Krankheiten der Pelttiere" (Ludwig Freund), Schaper, Hannover, 1930; "Les Teignes" (Saboureaud).

Periodicals.

La Nuova Veterinaria.

Tierärztliche Rundschau.

Nederlandsch-Indsch Bladen voor Diergeneeskunde.

Bulletin Mensuel de l'Office Internationale des Epizootics, Vol. I to complete set.

It was resolved :—

"That the report be approved, but that the purchases be deferred until the next Quarter."

Register, 1931.—(*a*) Advertisements. Copy for the proposed advertisements for the 1931 edition of the Register was submitted, and the matter was left in the hands of the Chairman with authority to approve or otherwise.

(*b*) Publication of Telephone Numbers. A copy of a resolution passed by the Lancashire Division of the N.V.M.A., urging the publication of members' telephone numbers in the Register was read. After careful reconsideration of this question, it was resolved: "That no action be taken for the present."

Appeals for Funds.—(*a*) The Librarian reported that, through the good offices of Dr. Sheather, he had been put into touch with the Goldsmiths' Company to which he had sent, with the approval of the Chairman, a letter appealing for a grant in aid of the Library. A letter was received from the Clerk to the Goldsmiths' Company transmitting a grant of £100, and it was resolved: "That the hearty thanks of the Council be accorded to Dr. Sheather for his assistance, and to the Goldsmiths' Company for their generous grant."

(*b*) *Pilgrim Trust.*—The Librarian read the text of an appeal he had sent in to the Trustees of the Pilgrim Trust laying before them the needs of the College Library.

The action of the Librarian was approved.

Dr. Sheather presented a framed plan of the Library showing the distribution of the books and periodicals.

The cordial thanks of the Council were addressed to Dr. Sheather for his very useful gift.

Colonel Brittlebank: There is a small matter which really ought to have been included in the Report of the Parliamentary Committee. It will be within the recollection of the Council that it is necessary for us to proceed to obtain a supplemental Charter, and it will be necessary for the Council to pass a resolution instructing the Solicitor to prepare the appeal for a new supplemental Charter. I therefore formally move that the Council instruct the Solicitor to do so.

Professor Share-Jones: I second that.

The motion was carried.

The President: It is to be understood that the terms of the Charter have already been settled by the Council.

Annual Meeting.—On the motion of Professor Buxton it was agreed that the Annual Meeting should be held in London.

Annual Dinner.—On the motion of Professor Buxton, seconded by Mr. McIntosh, it was decided that an Annual Dinner should be held, the following gentlemen being appointed as the Dinner Committee: Professor Buxton, Major Dunkin, Mr. McIntosh, Colonel Simpson, Mr. Trevor Spencer, Mr. Willett and Professor Wooldridge, with power to co-opt.

Notice of Motion.

Professor Bradley: In accordance with the minutes of the Examination Committee which have been adopted, I have to give notice that at the next meeting I shall move an alteration of Bye-law 78 so as to bring it in accordance with the instruction to examiners No. 11.

The Secretary: Resulting from the Report of the Registration Committee, the Standing Orders as now approved by the Committee will be proposed as bye-laws at the next meeting.

Proposed Memorial to Sir F. Smith.

The President: It has occurred to me and to Dr. Bullock that this would be a convenient occasion on which to bring before the profession as a whole the great desirability of enabling the whole volume of Sir Frederick's great work "The History of Veterinary Literature," to be published. It is quite unnecessary for me to say, or to endeavour to indicate, how important a place that work occupies in the literature relating to that particular subject. Text books are, of course, important, but they are in a sense ephemeral. I venture to say that "The History of Veterinary Literature," in the creation of which Sir Frederick Smith spent so much arduous work, spread over so many years, will last as long as there is veterinary science in this country. The unfortunate thing is that Sir Frederick Smith was not able to complete the great design which he sought—that was, to bring his history down to the year 1869. The volume which has just been published, since his death, deals with veterinary literature from the beginning of the 19th Century up to year 1823, and he contemplated that he would be able to deal adequately with the remaining history down to 1869 in the Fourth Volume. Before he died he was able to complete the manuscript of that volume, and it is now in the possession of Dr. Bullock, who, with myself, was appointed one of his trustees. It would be a matter for immense regret if this could not be published. It would probably be impossible to induce any publisher to publish it at the present time, and Dr. Bullock and I thought, and I am sure it will commend itself to you, that an effort should be made to raise the sum required to publish it by subscription from the different members of the profession. How many copies would be published would be a matter for those who take the scheme in hand. I would like to suggest the appointment of a small committee to launch this application. It would be broadcast through the medium of the veterinary journals and possibly wider than that to members of the profession. I think if that were done there is good ground for believing that the matter would be carried out. It is hardly necessary for me to point out that although the preceding three volumes deal with years or epochs in which things of great interest to the veterinary profession occurred, at any rate to moderns the important part of the history of the profession in this country is the part that remains to be dealt with. That is the period within which this Council was constituted and the Veterinary Surgeons' Acts were passed, and in which many other important advances were made.

It may be said that the publication of this volume, if it is achieved, will itself be a lasting memorial to Sir Frederick Smith, but, expressing my own feelings in the matter, I think that is not enough. What occurred to me was that supposing, let us say a hundred years hence, somebody comes into this room (or perhaps a better room) in which the Council of the Royal College of Veterinary Surgeons will be meeting—a stranger, who has some little acquaintance with the past history of the profession, and saw various pictures here, he would say: "Is there no

picture of Sir Frederick Smith?" It is true we have here a photographic likeness of Sir Frederick Smith, but I think something better than that should if possible be provided. It would be appropriate in that case also to appeal to the profession for the comparatively limited funds that would be necessary. Unfortunately, it is not now possible to get a portrait painted from life, but we have here in this room a most excellent likeness, and we have the uniform and sword; so that I think by employing a good artist we could get a worthy portrait of Sir Frederick Smith. That is Dr. Bullock's and my suggestion, and I shall be glad to move that a small committee be appointed.

Colonel Brittlebank: I have very much pleasure in seconding that.

The motion was carried.

The President: We need not delay very long in appointing a committee. It need only be a small one with power to add to its numbers. It must include people outside the Council, but we had better begin with members of the Council.

Mr. Holroyd: I suggest the Director of the Army Veterinary Service, because they have a Journal of their own through which an appeal could go to the members of the Army Veterinary Service.

The Secretary: He would certainly be one of the co-opted members.

It was agreed that the following should constitute the committee, with power to add to their numbers: Dr. Bradley, Professor Buxton, Professor Craig, Colonel Simpson and Colonel Walker.

This concluded the meeting.

* * * * *

Special Meetings of Council.

A Special Meeting of Council was then held, at which the same members were present.

The minutes were taken as read and confirmed.

Professor Buxton: I beg to move the amendments to bye-laws standing in my name on the agenda. In regard to the first, I think it is unnecessary for me to say anything, and in connection with the second I think probably the reasons for the moving of this amendment are in the mind of every Member of Council. I do not think it is necessary for me to enlarge on this in any way.

Colonel Simpson: I beg to second the motion.

The motion was carried.

It was agreed to hold the confirmatory meeting on the afternoon of Tuesday, January 20th.

* * * * *

At a Special Meeting of Council held at the College, 10, Red Lion Square, W.C.1, on Tuesday, January 20th, 1931, there were present Sir John M'Fadyean (President) in the Chair, Lieut.-Colonel J. W. Brittlebank, Professor J. B. Buxton, Major G. W. Dunkin, Messrs. G. H. Livesey, J. W. McIntosh, Dr. A. Leslie Sheather, Mr. Trevor F. Spencer, Colonel G. K. Walker, Professor G. H. Wooldridge and Captain W. G. Wragg.

The minutes of the previous Special Meeting, having been printed and circulated, were taken as read and signed as correct.

Apologies for absence were received from Major Abson, Dr. Bradley, Professor Gaiger, Mr. Hughes, Lieut.-Colonel P. J. Simpson, Captain R. Simpson, Dr. Whitehouse.

Bye-Laws. *It was resolved*—

That the following alterations to bye-laws adopted at the previous Special Meeting be confirmed:—

(*a*) *Bye-law* 52.—Omit the words "on an application for the removal of a name from the Register under Section 6 of the Act of 1881, the person against whom the complaint is made," and insert in lieu thereof—"the person against whom it is alleged (*a*) that he has been convicted of a misdemeanour or higher offence, or (*b*) that he has been guilty of conduct disgraceful to him in a professional respect."

(*b*) *Bye-law* 55.—That this bye-law be rescinded.

It was resolved—

That the Seal of the College be attached to the bye-laws as amended.

Clinical and Case Reports.

Poisoning by Woody Nightshade.

By R. H. Smythe, M.R.C.V.S., Camborne.

Woody nightshade (*Solanum dulcamara*) is usually credited with comparatively low toxicity and veterinary literature contains few references to poisoning from this source.

In July the plant is flowering and it is during this month that we have encountered cases in cattle. One point deserves comment; so far as we have observed, all the cases seen have been in cows heavy in calf, and in herds comprising animals of all ages these have been the only sufferers. If this be not mere coincidence, two possibilities present themselves—either that the plant is more readily eaten at this period of gestation or that it exerts its toxic action more fully in these subjects. The following cases are typical:—

I.—*July 20th.*—We were called to a cow, 8½ months pregnant, stated to be suffering from milk fever. The animal was staggering and fell frequently, rising slowly and with difficulty. Both pupils were widely dilated. There was some tympany. For want of a better diagnosis, the udder was inflated and an aperient administered. Four hours later the animal was completely comatose, tympany was very marked and the breathing was stertorous—"snoring" in character. The rumen was tapped and a draught of aloes, sol. ammoniæ and lysol administered through the canula.

The condition persisted for four days, terminating in death. Throughout the illness there was complete cessation of bowel movement and clysters were not expelled with any force. Tympany was constant.

Post-mortem revealed stems, leaves and vestiges of flowers of woody nightshade in the rumen. There was no evidence of gastro-enteritis or other lesion.

During the illness of this cow, a second, heavy in calf, developed identical symptoms and died A third, detected in the early stages, recovered in a few days after dosing with Epsom salts, aloes and strychnine.

Woody nightshade grew only in one corner of a hedge on this farm, and it was evident that it had been eaten freely.

II.—A week later we were called to see a cow on another farm, "down in the field with milk fever." She was due to calve almost immediately. Deep coma, stertorous breathing and tympany were present, with absence of peristalsis.

Enquiry revealed the fact that the herd had broken into a field, one hedge of which adjoined a croft. During other summers the stock had been kept shut away from this particular hedge, as it abounded in vipers, to the presence of which the owner attributed past cases of "head-flay." Woody nightshade grew in profusion and had been eaten. The cow was treated with aperients and small repeated doses of arecoline and pilocarpine. Chiefly to pacify the owner, the udder was inflated twice at the commencement of illness. Death occurred five days later.

A second cow, close on calving, died under similar circumstances during the following week.

Poisoning by Trefolium.

By R. H. Smythe, M.R.C.V.S., Camborne.

The subject was a half-bred mare, fed overnight on trefolium which had been cut several days and left in a pile in a closed shed.

The mare showed every sign of intoxication; excitement was marked, she neighed and snorted at visionary objects. The gait was rolling. An hour later she appeared partially comatose, standing behind but resting on the knees with the forehead on the ground.

Recovery was complete in twenty-four hours.

During the same week two horses on an adjoining farm showed the same symptoms after being fed on cut trefolium. Both recovered in a few hours.

Intoxication may have resulted from fermentation within the pile or from the formation of moulds. The remainder of each crop was fed freshly cut and caused no ill effect.

Remarks on Naganol Treatment (Bayer 205): Trypanosomiasis in Camels.

By Z. Morcos, M.V.Sc., F.R.C.V.S., D.V.H.,
Professor of Bacteriology, Cairo Veterinary College.

The routine adopted in the treatment of camels affected with trypanosomes was the administration of two doses intravenously at an interval of a week: for an adult camel, the first dose 4 grams and the second 6 grams. On one occasion, a camel died 24 hours after the second dose. *Post-mortem* disclosed a condition of advanced trypanosomiasis, but most marked nephritis: the urine contained 3 grams albumen per litre.

The following experiment was carried out to see whether or not one dose of Naganol, instead of two, would suffice for an apparent cure.

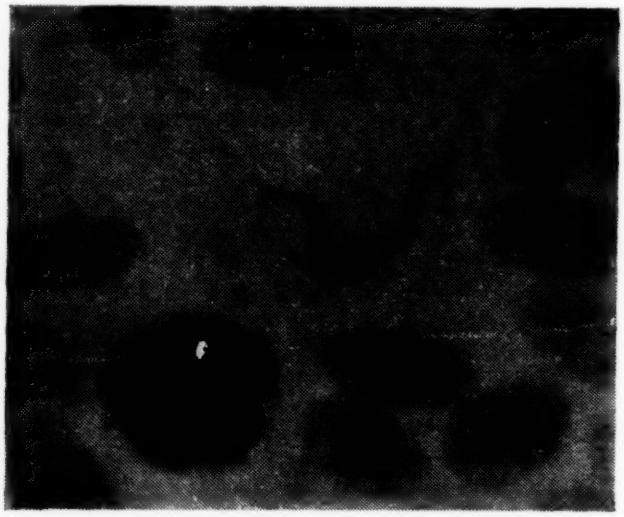
Five adult infected camels (Trypanosomes were microscopically demonstrated) were tried; each received 4 grams, dissolved in 40 c.c. sterile normal salt solution, intravenously.

Blood films were regularly taken daily from the 7th day following the Naganol treatment till the 40th day. Examined with negative result.

Five guinea-pigs were intraperitoneally inoculated with ½ c.c. blood drawn from each camel 21 days after the Naganol treatment. The guinea-pigs were kept under observation for two months, and did not show any signs of illness or reveal any trypanosomes on blood film examinations.

Three guinea-pigs were intraperitoneally inoculated with ½ c.c. each blood drawn from the first three camels before the administration of Naganol. All the three guinea-pigs revealed trypanosomes on blood film examination on the 8th, 12th and 15th days of inoculation and died on the 40th, 45th and 50th day of inoculation.

Formol-gel test was carried out weekly after the administration of Naganol and was positive till the 40th day of Naganol inoculation, after which it was negative.



Trypanosome Found in Egyptian Camels.
Morphologically, the Trypanosome looks like T. Evansi.

This experiment indicates that—

1.—For an adult camel affected with trypanosomiasis, one dose, 4 grams, inoculated intravenously may be curative.

2.—A camel may reveal no trypanosomes in the peripheral blood, which proves negative to film examination and guinea-pig inoculation, but its serum will be coagulated on the addition of a drop of commercial formalin.

3.—It is not advisable to treat with Naganol till the kidneys are rested, and albumen in urine reduced to traces.

"Ventricle Stripping" (Ventricular Mucotomy).*

By C. and H. S. Elphick, M.R.C.V.S., Newcastle-upon-Tyne.

Operation No. 1.

Subject.—Bay hunter gelding, seven years old. This operation was carried to completion with four ounces of chloroform, administered by the semi-open method, with "Zip" fastener regulator. The left ventricle was wholly paralysed. Both ventricles were stripped, the pouch in each instance being blanched and stiffened with adrenalin solution prior to incision into the rim.

The animal made an uninterrupted recovery, the wound having healed and closed.

Operation No. 2.

Subject.—Dark brown gelding, two and a half years old.

* Operations performed on the occasion of a meeting of the North of England Division, N.V.M.A., held at Newcastle-upon-Tyne on December 6th, 1930.

This animal appeared to be somewhat fractious, therefore he was given two fluid ounces chloral hydrate solution prior to casting. The operation was completed with three ounces of chloroform. Upon opening into the larynx no evidence of paralysis could be demonstrated, but stripping was carried out. As there was a chance of some tumour formation being the cause of the "noise," the cricoid cartilage was severed to allow maximum retraction, and the whole of the larynx was examined, but no evidence of any growth could be found. Both ventricles were blanched with adrenalin solution. The wound healed up without incident.

Points of Interest.—(1) Deep anæsthesia was obtained in the operations with the use of seven ounces of chloroform (United Alkali-chloroform).

(2) The "Zip" fastener muzzle facilitates the giving of air when required to be inspired with the anæsthetic. This type of muzzle has been in use nearly two years now and is just as efficient as it was when new. I do not know of a better muzzle for the quick introduction of the anæsthetic and closing, in chloroforming standing.

(3) Blanching the pouch lining with adrenalin, thus making enucleation of the pouch much easier. Flaccidity renders successful stripping at times a little difficult; the introduction of a cotton wool swab soaked in adrenalin solution brings about rigidity and assists materially in making the correct incision into the rim of the pouch.

(4) In *young* horses the splitting of the cricoid cartilage appears to cause no untoward after-effects, but even in young horses the cartilage should not be interfered with unless maximum distension of the opening into the larynx be required—as it was in the case of the second horse—for an extensive examination.

Foot-and-Mouth Disease Prosecution.

A fine amounting to £220, with £19 11s. 2d. costs, was recently imposed at Rugby on an Irish cattle dealer for moving certain Irish cattle contrary to the regulations contained in the Importation of Animals Act, 1922, and Part IV of the Animals (Landing from Ireland, Channel Islands and Isle of Man) Order, 1923. The cattle were licensed from a market specially authorised for the use of imported Irish cattle to certain specified premises for the purpose of undergoing the six days' detention laid down by the Regulations. The animals were not moved to the specified premises, but were sent to others. Enquiry showed that there was a deliberate attempt to evade the requirements of the Act, and the Bench took a very serious view of the case and imposed the maximum penalty.

The defendant appealed against the decision of the Justices at the Quarter Sessions at Warwick on the ground that the fine was unreasonable and excessive. The Court dismissed the appeal, the Chairman observing that it was a matter of great public importance that these regulations should be strictly enforced. The appellant was ordered to pay the costs of the appeal.

The regulations in question are statutory regulations so made by the Act of 1922 on the recommendation of the Departmental Committee which enquired into the foot-and-mouth disease epidemic of that year. They are an important part of the general machinery for preventing the spread of disease, and are made in the interest of the extensive cattle trade between Ireland and Great Britain and in that of the livestock industry generally.

"Cruft's."

We understand that Messrs. Entwistle's, Ltd., the well-known dog food manufacturers of Liverpool, will be exhibiting their specialities at Cruft's Show to be held on Wednesday and Thursday, February 11th and 12th. The firm extend a cordial invitation to all veterinary surgeons attending the Show to visit them at their Stand 52/54.

Reviews.

[**Dollar's Veterinary Surgery: General, Operative and Regional.** Second Edition. Rewritten and extended by J. J. O'Connor, M.R.C.V.S., Professor of Surgery at the Veterinary College of Ireland, Dublin, and Examiner to the Royal College of Veterinary Surgeons. pp. ix × 953, with 495 figures in the text. London, 1930. 25s. net. Baillière, Tindall and Cox.]

This book, the second edition of Dollar's "Veterinary Surgery," is arranged in three parts: General Surgery, pp. 3-107; Operative Surgery, pp. 111-422; Regional Surgery, pp. 425-936. Under "General Surgery" an instructive account is given of inflammation, abscess, sinus and fistula, wounds, tumours and cysts, affections of muscles, tendons and synovial sheaths, arteries, veins, nerves, lymphatic glands, bones and joints.

In the second part, "Operative Surgery," the various operations on the domestic animals are clearly described and full instructions are given concerning the control of the patient, anæsthesia, antisepsis and asepsis, hæmostasis, sutures, instruments and technique. The grouping of the operations in one section of the book will be found advantageous by students engaged in practising surgery on the dead subject. There are no important omissions, but in these days of the popularity of gastric lavage for the horse, more information might have been given regarding the manipulation of the stomach tube. In the descriptions of the major or more important operations, very little is said regarding unexpected difficulty arising during operation. Many operating veterinary surgeons have experienced more or less frequently, in cases of laparotomy, hernia, and cryptorchid castration, some deviation from the normal or expected condition that has called for prompt decision and rapid action. Descriptions of serious operations should prepare the operator for emergencies and enable him to meet them successfully.

"Regional Surgery," part III, is devoted to the surgical diseases of the horse, ox, sheep, pig, and dog—with occasional reference to the cat. It is comprehensive enough, though its articles are rather unequal in merit. It is weakest in symptomatology. Practitioners in search of the latest views on some of the surgical diseases are unlikely to appreciate the arrangement of the subject matter of the book into three parts, as they will have to pass from one section to another in order to obtain the desired information.

This is virtually a new book, and Professor O'Connor can be heartily congratulated on the production of a work that promises to take the premier place amongst English text-books on Veterinary Surgery. It is profusely illustrated, but some of the figures may be considered as superfluous or obsolete. Spring fleams and cumbersome operating tables are not now required. It is to be regretted that the instruments figured are not always of British origin.

J. MacQ.

"The Centaur."

There are certainly literary talents, poets of the first order, masters of quips, and raconteurs in the Royal (Dick) Veterinary College, Edinburgh, judging from the copy of the magazine of the College which has been sent to us for review. If subsequent numbers are to be at all comparable with the second number, which is to hand, there will be a likelihood of Pepys' Diary being out-Pepyed in witticism and record of events. The Editorial Committee and Editorial Staff are greatly to be congratulated on their venture and on the very delightful and albeit necessary means of cementing the College Alumnus Association, and of keeping past students in touch with the College and with one another, thus fostering that permanent interest in their Alma Mater which is so desirable.

The Centaur is published once in each academic term by the Students' Representative Council of the College, and its aim is the high one of making the College, the student, and the graduate a trinity in unity. It chronicles the activities of the College Alumnus Association, the annual subscription to which is only half-a-crown, including a copy of the magazine. If the delight of reading essays of wit, flights of poetic fancy, and oratory which is not usually associated with professional periodicals, counts for anything, we have no hesitation in saying that *The Centaur* is a cheap medium for cheering a dull spirit, and for establishing an antidote for present mundane depression.

It is interesting to note from its pages that a Branch of the Royal Society of Tropical Medicine has been formed in Edinburgh and that the Edinburgh University now confers a Diploma in Tropical Veterinary Medicine (D.T.V.M. Univ. Edin.). The complete curriculum of study, and the fees for the courses of instruction and for examination are given in the magazine.

The activities of the various athletic clubs in connection with the College are briefly reported by the Hon. Secretaries of each, and hopes are expressed for future successes.

Lastly, the Students' Representative Council are anxious to discover a suitable college song, and invite competition from students and graduates, full arrangements for which are to be published in the next issue. There would, however, appear to be a very excellent college song in the magazine under review, with initials J. R. G., the epilogue of which may be quoted in conclusion :—

"Let us pray that e'en we may
(We who now are brothers),
Wheresoever we go forth,
East or South or West or North,
Great in courage, heart, and worth,
Blaze the trail for others." J. M.

No one will seriously question the generalization that livestock will be in the future, even more than in the past, the mainstay of British farming; and there seems little reason to doubt that the future of our agriculture is closely bound up with the progressive development of stock-farming. But it would be in many ways regrettable if this development meant the decay of arable farming; and one of the strongest arguments put forward by the advocates of arable stock-farming is that the plough can be effectively and profitably used to increase the livestock output of our farms.—*The Times.*

N.V.M.A. Divisional Reports.

Scottish Metropolitan Division.*

Meeting at Blairgowrie.

A meeting of the Scottish Metropolitan Division was held in the Queen's Hotel, Blairgowrie, on Saturday, June 28th, 1930. Prior to the meeting the members met for an informal luncheon in the Hotel.

The President, Mr. W. Nairn, occupied the Chair at the General Meeting, and the following gentlemen signed the Attendance Book :—

Members.—Mr. W. Nairn (the President), Messrs. A. Spreull (Sen.), J. Gibson, G. D. Munro, J. G. McGregor, Wm. Anderson, Esmond Brown, Jas. Bishop, Wm. S. Lornie, Professor Wm. M. Mitchell, Principal O. Charnock Bradley, Dr. T. W. M. Cameron, Messrs. H. M. Wilson, R. G. Anderson, P. Cumming, J. Anderson, and the Hon. Secretary.

Visitors.—Messrs. J. MacLeod, J. D. McLauchlan, E. Clark, Dr. A. E. Cameron, Messrs. J. Anderson and W. Peirson.

An excerpt of the Minutes of the last meeting was read by the Secretary and approved.

The Secretary intimated the receipt of apologies for absence from Major A. Baird, Mr. A. Gofton, Professor R. G. Linton, Messrs. T. M. Inglis, and A. Linton Robertson, Professor Boddie, Major Graham Williamson and Mr. W. P. Blount.

Correspondence.—(1) From the Secretary of the Eleventh International Veterinary Congress regarding attendance at the Congress in London, facilities for travelling, etc.

(2) From the Secretary of the Dumfries and Galloway Division, and from the Secretary of the Scottish Branch with reference to the appointment of a veterinary surgeon to the Department of Health for Scotland. Major McGregor gave a brief résumé of the position in Scotland and the methods that were adopted of consultation with members of the profession. The President suggested that the Division should keep in touch with the position through the National Veterinary Medical Association.

(3) Letters of resignation were read from Messrs. S. Robson and W. P. Blount, owing to their non-residence in the Divisional area. It was decided to accept these resignations with regret.

Papers.—The President then briefly introduced Dr. T. W. M. Cameron, of the University of Edinburgh, who had returned again to Scotland after a sojourn in London, where he had made his name a familiar one in the profession through his work on Helminthology in the School of Hygiene and Tropical Medicine. He would address them on the subject of "Parasitology and the Practitioner." Dr. Cameron then delivered his address which, together with the discussion and his reply, is printed elsewhere in this issue.

The President (Mr. W. Nairn) then read a paper on "The Treatment of Canker of the Horse's Foot," which, together with the discussion upon it and Mr. Nairn's reply, also appears earlier in this number of the *Record.*

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* Received for publication 8th January, 1931.

On the motion of Mr. G. D. Munro, a very hearty vote of thanks was accorded to the speakers for their interesting addresses.

Scheme for the Eradication of Bovine Tuberculosis.

Major J. G. McGregor briefly reported the progress made to date with the Scheme for the Eradication of Bovine Tuberculosis prepared by the Scottish Branch. He mentioned that the scheme had been sent out to the three chief Agricultural Bodies in Scotland—the National Farmers' Union for Scotland, the Scottish Chamber of Agriculture and the Highland and Agricultural Society. Of these, the National Farmers' Union was very enthusiastic in its reception. Some minor points were added in connection with disinfection and temporary buildings, but the National Farmers' Union thought the scheme had not been too severe on the owner and advocated some rather more stringent measures. The Scottish Chamber gave the scheme careful consideration and accepted it in principle. They made some minor modifications, but agreed to support the Branch in its further activities. The Highland and Agricultural Society, however, had not been favourable. They had referred the matter to their Scientific Committee, upon which they had not a single man qualified, in his opinion, to speak upon bovine tuberculosis. They thought that areaisation was not possible, and that it had not been proved that it would benefit the community or advance matters to have tuberculin restricted to the veterinary profession. He did not need to say that members of the profession would not agree with these views. (Hear, hear.)

The scheme would also be sent to local authorities so soon as the new Local Government Acts became functional. All public health work would be delegated to the County Councils in future, with exception of the large cities. The circulation of these local authorities would be undertaken immediately the new committees were constituted and in action.

Representation of Scotland on the R.C.V.S. Council.

Major McGregor said he was sure he would be voicing the views of the Scottish members of the profession when he proposed that they accord their hearty congratulations on the success of their candidatures to Mr. Nairn, the President, and to Mr. Spreull, of Dundee, who were elected to the Council of the Royal College of Veterinary Surgeons at the recent elections. (Applause.)

He would like further to mention that he had undertaken to raise a fund to assist their two official representatives in defraying some of their travelling expenses to London. The fund was mounting up, but had not received really adequate support from some members, although the Scottish Metropolitan members and those of the West of Scotland Division had done very well. (Applause.)

Mr. A. Spreull, on behalf of Mr. Nairn and himself, thanked the members present, as well as those who were not present, for their support at the elections. He felt the result was very gratifying and they could be sure Mr. Nairn and himself would do their best to justify the confidence they had placed in them.

He desired also to express their sense of indebtedness to Major McGregor and to Mrs. McGregor for all the trouble they had taken in circulating the Scottish members in connection with their fund. (Applause.)

North of England Division, N.V.M.A.

Officers Elected at Newcastle-on-Tyne.

A meeting was held in Newcastle-on-Tyne on December 6th, 1930, the first part of the proceedings taking the form of a surgical demonstration, at 67 Newgate Street, where Messrs. Elphick operated on two patients which had been secured for the roaring operation. Messrs. Elphick used a chloroform muzzle, to which was attached the ingenious "Zip" fastener, and this was found to be a very effective method of closing the muzzle, either in whole or in part, as was required.

The surgical procedures were greatly appreciated by the members, who afterwards adjourned to Armstrong College, where the business meeting was held. [For account of operations and report of progress of patients, see clinical section.—Ed.]

The chair was occupied by the President, Councillor J. H. Taylor, and the attendance book was signed by Messrs. W. Jackson Young, H. Hicks, T. M. Mitchell, W. H. Blackburn, T. Wilkinson, C. Nicholson, C. G. Hill, J. W. Rider, P. Snaith, H. S. Elphick, A. C. Forbes, J. Stewart, R. Simpson, F. Christopher, N. Irvin, R. Barker, H. P. Lightfoot, W. L. Stewart and J. R. Rider, Hon. Secretary.

Apologies for absence were received from Dr. Bradley, Professor Hobday, Messrs. H. Peele, J. P. Isherwood, J. J. McDowall, and J. Davidson.

The minutes of the preceding meeting, having been published, were taken as read, and approved.

Correspondence.—(1) From Mr. H. Peele, thanking the Division for its letter of sympathy with him in his illness, and stating that he was now much better.

(2) From the Royal Sanitary Institute, inviting the appointment of delegates to the 1931 Congress, to be held in Glasgow. It was agreed to remit this letter to the Council for consideration.

Report of Council Meeting.

The Secretary read the report of the Council meeting, held on October 31st, which dealt with the arrangements for that meeting, the nomination of officers for the year 1931, and other domestic matters. The report was received and adopted.

Election of Officers for 1931.

The President said that this matter had received the careful consideration of the Council, and he hoped the nominations to be made would receive the whole-hearted support of that meeting. It was his pleasure to move that Mr. W. H. Blackburn be elected *President* for the ensuing year, and he did so with the utmost confidence that the traditions of the Chair would be worthily upheld by his successor. Mr. C. G. Hill seconded the President's motion, which was carried with acclamation.

Senior Vice-President.—Mr. M. Mitchell moved and Mr. Wilkinson seconded that the retiring President be elected to this office. Mr. Mitchell put the motion to the meeting, and declared it to be carried unanimously.

On a motion by Professor Mitchell, a very hearty vote of thanks was accorded to Mr. Nairn for his conduct in the chair and for the excellent arrangements that had been made for their comfort and for the success of the meeting at Blairgowrie.

Wm. C. Miller, *Hon. Secretary.*

Junior Vice-President.—Mr. J. W. Rider moved and Mr. W. L. Stewart seconded that Mr. H. Hicks be elected to this office, a motion which was again carried unanimously.

Hon. Secretary and Treasurer.—Mr. J. R. Rider was re-elected to this office, on the proposal of the President, seconded by Mr. T. M. Mitchell.

Hon. Auditors.—Messrs. H. S. Elphick and F. Christopher were elected on the motion of the President, seconded by Mr. Snaith.

Members of Council.—The Secretary pointed out that, in accordance with the new rules, the new council would consist of six members elected by the Division, in addition to the *ex-officio* members, and that it would simplify matters if the meeting would agree to elect two members at this stage, who would serve for three years, and then retire in accordance with the rule. This course was agreed to and, after the President had called for nominations, a ballot was held, as the result of which the President declared Messrs. Christopher and Forbes duly elected.

Reports by Delegates to Outside Bodies.

The President said that the Council had come to the conclusion that much good would result from the annual presentation to a general meeting of accounts of the activities of their delegates during the year, and arrangements had therefore been made for the various delegates to render an account of their stewardship at that meeting. He called upon Mr. H. S. Elphick to read his report relating to work done at the Dispensary for the treatment of Sick Animals of Poor Persons, run in connection with the local branch of the R.S.P.C.A.

Mr. Elphick's report was as follows:—

Dispensary for Sick Animals of the Poor.

This Dispensary, run under the auspices of your Division of the National Veterinary Medical Association, was opened on November 2nd, 1928, and has, I am sure, done good work and supplied a long-felt want. During the two years it has been in existence I have attended all sessions with the exception of about ten, which my brother has attended and also Major Peele—the latter thrice.

During the first complete year about 1,500 attendances were put in, and during the second year this was more than doubled.

Drugs and premises are found by the Newcastle Branch of the R.S.P.C.A., and I have been voluntarily assisted at the sessions by either Captain Miller or one of the inspectors. A box is placed in the dispensary for persons to subscribe if they can afford it, and up to date the drugs and dressings expended have been paid for about three times over from the subscriptions so collected.

In addition to these attendances daily dressings have been in about one hundred instances necessary at our surgery during the two years. A very fine operating table and various everyday instruments have been presented to the dispensary by two interested clients of ours, and, judging from the results of two Flag days, the institution has received a warm welcome from the people in Newcastle and neighbourhood.

The work has been congenial, but on some occasions somewhat arduous after a day's work. On many occasions and particularly during the last few weeks it has been from 8.30 to 9.30 before the session was over.

In the main, the cases have been troubles of the stomach and bowels, skin, ears, eyes, distemper, chorea and interdigital abscess. Three cases of canine typhus have been met with and extirpation of the eye has been performed in some four or five cases. Most of the operations, however, have been the removal of growths, mainly those affecting the mammary glands. Some dozen or eighteen fractures have been reduced and set and fifty-nine operations under anæsthesia have been performed.

The number of dogs destroyed as incurable has amounted to only fifteen, and nineteen cats departed this life for the same reason. Bad fractures in the case of dogs, or those almost dying when brought to the dispensary, account for most of the fifteen, whilst there were many cases in cats of tuberculosis and other growths in the bowels.

In discussing the report, Mr. Simpson remarked on the harmonious relations which appeared to exist in Newcastle between the R.S.P.C.A. and the profession. He congratulated Mr. Elphick on the work done, and was of the opinion that more cordial relations might be established in other districts.

The President thought that very useful work was being done by this dispensary, and appealed for still greater support by practitioners within reach of Newcastle.

Northumberland Agricultural Society—Committee.

Mr. C. Elphick read the following report relating to the work of this Committee, which has for its object the establishment of a research station at Cockle Park, for the investigation of certain diseases of sheep.

A meeting of the above committee was held at the Newcastle Farmers' Club, on October 28th, 1930, the Earl Grey of Hawick being in the chair.

The meeting was called primarily to put before the Committee the financial position of the body, in regard to the formation of a research station at Cockle Park, for the investigation of diseases affecting sheep, especially those of a parasitic nature.

Although an intensive and sustained appeal has been made, the result is far from gratifying, and for the moment at least, the project is in abeyance.

A new scheme was suggested by one of the members, in the shape of a levy of so much per score of sheep on each farmer's holding, and the suggestion met with the wholehearted support of the members present. It is now left to be seen if this will bring to hand the minimum amount required in order to obtain a commencement of activities at Cockle Park, and also the assistance of the Ministry of Agriculture and Fisheries.

The Ministry's lay representative was present, together with Mr. W. Jackson Young and Mr. W. Lyle Stewart.

Mr. Elphick moved the reception and adoption of the report; the motion was seconded by Mr. Forbes, and carried.

N.V.M.A. Council.

The Secretary read a report dealing with the work accomplished by the Council during the year, enumerating a number of instances in which the Association had recently been of service to various sections of the profession. Captain Rider concluded by saying that the work of the Council of the "National" was rapidly becoming more extensive, and of greater importance to all members of the profession, whether members of the Association or not. It was becoming impossible to complete the business on one day, and it was likely that, as time went on, two or more days would become the recognised period. He had been attending the quarterly meetings in London for the past five years, and he wanted to emphasise the fact that members of the Council approached their duties with the highest ideals of service to the profession as a whole, consistent with practical considerations. He hoped he had said enough to show the imperative need for still greater support, by means of increased members. It was probably right to say that the influence of the "National" was directly proportional to the strength of its membership, and it was not putting it too strongly to say that non-members of the Association were reaping most of the advantages of membership at

the expense of their more loyal colleagues. There was no reason why any member of the profession should not also be a member of the "National," but, on the contrary, there was every reason why he should support the efforts of the Council both morally and financially. A larger membership, and increased income would enormously strengthen the position of the "National," and in so doing would react to the advantage of the profession as a whole.

The Secretary moved the reception and adoption of the report, and Mr. Blackburn, in seconding, drew attention to the fact that the latest Bill relating to the further protection of animals in coal mines did not include the provisions recommended by the N.V.M.A. The Secretary replied that unfortunately this was so, but at the moment no explanation was forthcoming for the omission, nor was it known whether the recommendations would be introduced at a later stage, if the Bill made further progress.

Mr. Jackson Young remarked that the report covered an immense field, and even then did not mention every piece of work accomplished on behalf of the profession. It did, however, show quite clearly that the Council of the "National" was labouring continuously for the benefit of the profession, and it should bring home to those who were not members of Council the magnitude of the task, as well as the need for still further support. It did not reflect credit to be told that the "National" represented no more than about half of the profession, and he felt sure that everyone present would do all in his power to induce others to join.

A hearty vote of thanks was accorded to all the delegates, on the motion of the President, seconded by Mr. Hill, and a similar vote of thanks was accorded to Messrs. Elphick for their kindness in demonstrating the operations, and for the use of their premises.

A meeting of the ladies of the North of England was held concurrently with the general meeting, for the purpose of formulating their plans for the ladies' effort on behalf of the Victoria Veterinary Benevolent Fund, which is to take place at the time of the Annual Meeting.

J. R. Rider, *Hon. Secretary.*

Victoria Veterinary Benevolent Fund.

A meeting of the Victoria Veterinary Benevolent Fund was held at 10 Red Lion Square, London, W.C.1, on Wednesday, January 7th, 1931, when there were present:—Lieut.-Colonel J. W. Brittlebank (President) in the chair, Major J. Abson, Dr. O. Charnock Bradley, Professors J. B. Buxton, J. F. Craig, Messrs. R. Hughes, G. H. Locke, J. W. McIntosh, Major-General Sir John Moore, Major D. S. Rabagliati, Lieut.-Colonel P. J. Simpson, Captain Sidney Villar, Mr. J. Willett and Professor G. H. Wooldridge.

The minutes of the previous meeting, held on October 8th, 1930, having been published, were taken as read and signed as correct.

Apologies for absence were received from Mr. A. Gofton, Major F. L. Gooch, Messrs. J. Ewing Johnston, Arnold Spicer, H. P. Standley, C. W. Townsend, Wm. Woods and W. Jackson Young.

Secretary's Report.

The Secretary (Dr. F. Bullock) submitted the following report, which was approved:—

During the past quarter special donations of £15 15s. 0d., as shown below, were received for the purpose of making Christmas gifts to those of the recipients on the books who are in special need. With the consent of the President and Treasurer, the selection was made by the Hon. Secretary and the General Secretary, and cheques were sent to eleven grantees, all of which have been acknowledged with much gratitude.

Mrs. Simpson has sent a cheque for £8 2s. 0d., being the proceeds of a competition for a piece of needlework done by her. This generous practical interest in the needs of the Fund will, I am sure, give much pleasure to members of the Council.

The sum realised from Collecting Boxes (shewn below) amounts to £34 19s. 2d., but it is expected that several holders of Collecting Boxes who have not yet sent in their reports will shortly be making the necessary remittance.

The donations and new subscriptions are as follows:—

Subscriptions.

Special for Distribution at Christmas:

	£ s. d.	£ s. d.
L. S. Balls	10 10 0	
J. W. Brittlebank	2 2 0	
P. J. Simpson	2 2 0	
Mrs. E. M. Wooldridge ...	1 1 0	
		15 15 0
H. W. S. Bodger (increase)		0 10 6
Central Veterinary Society (special)		10 0 0
John Lyon (increase)		0 10 6
J. O. Powley (increase)		0 9 6
S. E. Robson (increase)		0 10 6
F. S. Whitfield		1 1 0
		£28 17 0

Donations.

	£ s. d.
Collecting Boxes.	
E. Whitley Baker	1 12 6
F. Chambers	0 10 0
J. Wright Conchie	0 17 6
J. L. Cormack	3 0 0
Derbyshire Division, N.V.M.A.	0 19 6
Mid-West and South Wales Division, N.V.M.A.	3 13 6
North of England Division, N.V.M.A.	3 5 6
North of Ireland V.M.A.	2 10 0
North Wales Division, N.V.M.A....	1 4 9
Royal Counties Division, N.V.M.A.	4 4 0
Royal (Dick) Veterinary College	0 18 0
Southern Counties Division, N.V.M.A.	1 0 0
James Storrar	1 1 0
West of Scotland Division, N.V.M.A.	1 1 10
Western Counties Division, N.V.M.A.	2 12 9
Arthur Whicher	3 10 10
W. Jackson Young	2 17 6
Collecting Boxes	34 19 2
Anonymous	1 1 0
Council Meeting, October, collection	1 12 6
R. Eaglesham	0 10 6
H. Tudor Hughes	0 10 6
Mrs. M. Simpson, proceeds of Competition ...	8 2 0
Guy Sutton	2 0 0
Mrs. A. Whicher	1 0 0
E. Alfred West	5 5 0
Mrs. E. M. Wooldridge, Christmas Collection	0 10 0
	£55 10 8

It was resolved "That a very cordial thanks of the Council be addressed to Mrs. Simpson, Mr. Leonard Balls, M.R.C.V.S., Mrs. Wooldridge, and the other donors for their very generous contributions to the Fund."

Cases.

No. 115. Member, aged 66. The Executive Committee reported that they had received a further appeal from this member and had granted him further assistance to the amount of £1. The action of the Executive Committee was approved.

No. 119. Member. A further application was received on behalf of this member and the matter was left in the hands of the Executive Committee to make further enquiries.

No. 132. Member, illness. A letter was received from this recipient stating that her husband had now obtained employment, and it was decided to discontinue the grant.

No. 140. Widow, aged 57. It was reported that this member died on November 12th, 1930, and that his widow was left in very straitened circumstances. An application for assistance to the widow was considered and a grant of 10s. per week was made.

No. 144. Daughter of member, two young children. A further application was received in this case and the matter was referred to the Executive Committee with power to act, after making further enquiries.

No. 145. Daughter of member. The grant in this case was discontinued.

No. 148. Widow, aged 67. Professor Craig reported on this case and it was agreed to continue the grant of 10s. per week.

No. 150. Member, out of work, aged 29. An application was received from this member but not acceded to.

No. 151. Mahon, F. C., M.R.C.V.S., aged 69. Wife invalid. The Secretary reported an application received from this member and stated that he had submitted the case to the Council of the Central Veterinary Society, the member having formerly been Secretary to that Society. The Council had thereupon made a special grant of £10 to the Benevolent Fund for the benefit of Mr. Mahon, and that sum had been handed over to him.

Garnett Annuity.—The Secretary reported that advertisements had been published in the *Veterinary Record* asking for applications for the Garnett Annuity but that only one application had been received, namely, from the Central Veterinary Society recommending Mr. F. C. Mahon, M.R.C.V.S.

It was resolved "That the Council of the Royal College of Veterinary Surgeons be recommended to award the Garnett Annuity to Mr. F. C. Mahon."

The investment of the amount accumulated in the Donations Fund was left in the hands of the Treasurer.

Gland Grafting.

Dr. R. M. C. Gunn, B.V.Sc., M.R.C.V.S., Lecturer in Veterinary Surgery and Anatomy, University of Sydney, states that gland grafting experiments conducted by him do not support the claims of Dr. Voronoff. Some time ago tests were made with goats, when castrated males of various ages were grafted. The effects, if any, were very fleeting, and had disappeared within ten months. All the tissue grafted and recovered at the end of the experiment was found to be quite dead.

A wider experiment on sheep was next planned, but for financial reasons its magnitude had to be decreased. Some sheep, however, were grafted, and the result shows that testicular tissue can be grafted and will continue to live for three weeks. Mr. Gunn adds that "the clinical effects of increasing production, though the experiment is still incomplete, are not encouraging."—*Live Stock Journal.*

In Parliament.

The following questions and answers were recorded in the House of Commons recently:—

Foot-and-Mouth Disease.

Brigadier-General Clifton Brown asked the Minister of Agriculture (prior to the Bedfordshire outbreak) whether there have been any fresh outbreaks of foot-and-mouth disease in Sussex or elsewhere; whether the source of infection at Westmeston has been discovered; and whether the outbreak is being dealt with by the slaughter of all animals or by the new proposals as regards inoculation?

Dr. Addison: No fresh outbreaks of foot-and-mouth disease have occurred in any part of Great Britain since that confirmed on January 18th at Westmeston. The source of infection in that case has not been discovered. All the stock on the premises, consisting of 52 cattle, 97 sheep and 102 pigs, was slaughtered, all these animals having been in contact.

. . . . .

Horses (Purchase).

Sir W. Jenkins asked the Secretary of State for War what number of horses were purchased annually by the War Office from England, Scotland, and Wales for each year from 1924 to 1930, inclusive, giving the figures for each country separately?

Mr. Shaw: The numbers are as follow:—

	England.	Scotland.	Wales.
1924	1,936	24	78
1925	1,136	21	25
1926	940	14	24
1927	451	6	30
1928	382	3	46
1929	704	13	24
1930	620	10	26

. . . . .

Imported Mutton (Caseous Lymphadenitis).

Mr. Arthur Michael Samuel asked the Minister of Health whether he will take steps to arrange that legs, shoulders, sides, saddles and other parts of mutton and lamb shall be passed by medical officers before the meat is shipped, so that no meat cut from carcasses suspected of, or showing evidences of, caseous lymphadenitis shall be allowed to reach United Kingdom ports?

Mr. Greenwood: This matter is now receiving my consideration.

Mr. Samuel: Is the right hon. Gentleman aware that that is no more than what he said a month ago? Is he still allowing the public to eat food from diseased animals?

Mr. Greenwood: I am not sure that that assertion is true. Like myself, the hon. Member is a little concerned. I am anxious to do all that is necessary to protect the public interest.

Mr. Samuel asked the Minister of Health whether he still permits the sale for human consumption of portions of imported mutton and lamb cut from carcasses in which there has been evidence or suspicion of caseous lymphadenitis?

Mr. Greenwood: The recommendation which for many years has been made by my Department to local authorities, and is, I understand, generally adopted at the ports, is that the whole carcass should be destroyed where evidence of this disease is found.

Mr. Samuel: Is that being carried into effect?

Mr. Greenwood: Practically universally, I understand. I have never heard of the instructions being ignored.

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Pigs (Slaughter, Scotland).

Mr. Freeman asked the Secretary of State for Scotland the number of authorities that have adopted the use of the humane killer for pigs; and if he has any figures showing the number of pigs killed by that means in 1929 and 1930?

Mr. W. Adamson: Six local authorities in Scotland have passed by-laws which require the use of a mechanically-operated instrument for the slaughter of swine, and there is a like requirement in Glasgow under the provisions of a local Act. Eight local authorities have passed by-laws

requiring pigs to be stunned before being stuck, the type of instrument not being prescribed. Other by-laws contain a similar requirement, the method of stunning being such as the local authority may prescribe, while others require the implements of slaughter to be such as the authority may fix or approve. In the areas of certain other local authorities a humane killer is probably used for the slaughter of pigs, although such use is not prescribed by by-law or Act, but I have no certain information on this point. I have no information as to the number of pigs killed by that method in the years mentioned.

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Vivisection.

Mr. Freeman asked the Home Secretary how many experiments on living animals were conducted in each of the last ten years at the Royal Veterinary College and by the advisors or professors associated with the college?

Mr. Clynes: I regret that this information is not available. It would be a long and laborious business to collect these particulars; probably in view of the changes of *personnel* which necessarily take place in a period of years many of the details would now be unobtainable; and I regret I could not undertake to attempt to procure them.

Notes and News.

Diary of Events.

Feb. 9th.—N.V.M.A. Committee Meetings, at 2 Verulam Buildings, Gray's Inn, W.C.1:—Finance, 3.45 p.m.; Editorial, 4.30 p.m.

Feb. 12th.—Annual General Meeting of the Lincolnshire and District Division, N.V.M.A., at Grantham.

Feb. 13th.—Meeting of the North Wales Division, N.V.M.A., at Aber, near Bangor.

Feb. 20th.—Meeting and Annual Dinner of the Midland Counties Division, N.V.M.A., at Birmingham.

Mar. 13th.—Yorkshire Division, N.V.M.A.; Dinner-dance at Leeds.

R.C.V.S. Annual Dinner.

Lord Mayor and Sheriffs to Attend.

We have much pleasure in announcing that the Lord Mayor and Sheriffs have accepted the invitation of the Council of the R.C.V.S. to attend the Annual Dinner, which will be held at the Hotel Victoria, King Edward VII Rooms, on Thursday, July 2nd. We hope that as many members as possible will keep this date free in order to be present to support the President at this important function.

The Late Sir Frederick Smith.

We are very glad to be able to announce that Dr. Fred Bullock has been commissioned to contribute a biographical notice of the late Major-General Sir Frederick Smith to the new Supplement of the Dictionary of National Biography. We appreciate this honour done to the memory of a distinguished veterinarian; it is an honour shared by very few of our profession. We are glad, too, that it should be the Registrar of the Royal College who has been entrusted with this duty, for he is in every respect competent to carry out the task in a manner worthy of the subject.

R.C.V.S. Council Election, June, 1931.

The following additional nomination has been received:—Lieut.-Colonel T. Dunlop Young. Proposers: Lieut.-Colonel P. J. Simpson, Mr. J. W. McIntosh.

A Sign of the Times?

The writer of "Talk of the Day" in the *Evening News* of January 30th says: "Approaching Piccadilly Circus from Regent Street just before nine o'clock this morning, I counted 11 horse-drawn vehicles in various parts of the Circus—and not a single motor vehicle, not even a motor-omnibus, to spoil the illusion.

"I wonder how often this coincidence occurs. The sight of this centre in complete possession of horse traffic carried one's mind back 20 years."

R.C.V.S. Obituary.

Creagh, Philip William, Corrin Ville, Fermoy, Co. Cork. Graduated London, December 20th, 1889. Died January 23rd, 1931.

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The Late Mr. P. W. Creagh, M.R.C.V.S.

In forwarding newspaper references of the late Mr. Creagh, Lieut.-Colonel H. T. Ryan, F.R.C.V.S., of Cork, writes: "Mr. Philip W. Creagh was one of the best-known veterinary surgeons in the South of Ireland. In his younger days he was a renowned point-to-point rider and being always a sportsman, was a keen follower of hounds almost up to his death.

"Mr. Creagh was widely respected by all creeds and classes, he was an ornament to his profession, and his wonderful personality, upright character and genial manner caused him to be beloved. His death will be deeply mourned by all who knew him."

The *Cork Examiner* of January 28th states:—

"The funeral of this esteemed gentleman took place on Sunday afternoon, amidst the greatest public respect, associated with the deepest sympathy for the members of his family. The deceased, who was born in Mallow, in July, 1866, graduated at the R.C.V.S., and was admitted to practice in 1889, after a very successful college course. During the past 38 years he has been in Fermoy, and during that period he has proved to be one of the ablest members of his profession. He had a great fondness for dogs, and at his establishment, which is a model of its kind, on Ashe quay, was a notice to the effect that the dogs of poor people were treated there free of any charge whatever. That one instance goes to show in a small way the kindness and generous heart of Mr. Creagh, who made a host of friends by the influence and exercise of his many excellent qualities, as well as his rectitude and uprightness in all his dealings. He was Veterinary Inspector under the Contagious Diseases of Animals Acts for the rural areas of Fermoy, Mitchelstown and Lismore. It was only last November that he was appointed by the Appointments Commission as Inspector for Fermoy Urban district, and short though the period is, it can be stated that his keenness for clean surroundings where milk and meat were sold to the public, showed that he intended to have good milk and good meat retailed to the purchasing community. His illness was of short duration, just one week, when his death took place on Friday evening, despite all that medical skill and careful nursing could do. The cortege was of enormous dimensions, and was comprised of representatives from all over the counties of Cork and Waterford."

A large number of fellow veterinarians attended, and many sent floral tributes.

"At the fortnightly meeting of the Fermoy Council the Chairman (Mr. M. Young)," says the *Cork Examiner* of

January 30th, " said that as they all knew one of their very respected townsmen, an official of the Council, had been buried on Sunday last, and he thought that the Council would only be doing their duty in adjourning the meeting as a mark of respect, and sympathy with his relatives.

" Mr. G. Power proposed that the Council adjourn without transacting any business as a mark of respect to the memory of their late official, Mr. Creagh, and of sympathy with his family in their loss. The deceased won the esteem of every class and creed in Fermoy, and everyone regretted his unexpected death.

" Mr. McCarthy had a melancholy pleasure in seconding the resolution, with which Messrs. W. Power and Hayes were associated.

" The Clerk, on behalf of the officials and himself, joined in the resolution. It would be hard to find a man who was so conscientious and so keen in the discharge of his duties as veterinary inspector.

" The Chairman, in declaring the resolution passed, said he had many opportunities of seeing the grand traits of character of the late Mr. Creagh. He had met him at fairs all over the district, and all he could say was that Mr. Creagh acted in every respect as a gentleman. On going to a fair or coming from it he never refused a poor man a lift in his motor-car, and in regard to the animals of the poor he never charged a penny for their treatment or medicine."

The Cork County Council passed a vote of condolence with the bereaved—Mr. Creagh's two sons, Captain P. C. W. Creagh, R.A.V.C., and Major Creagh, R.A.M.C.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

N.V.M.A. Clinical Prize Scheme for Students.

To the Editor of The Veterinary Record.

Sir,—Whilst it is extremely regrettable that the response to the generous offer of clinical prizes for students, made annually by the N.V.M.A., should be so meagre, it has occurred to me that the reason for this lies with those practitioners who take pupils rather than with the students themselves and that the apparent reluctance of students to compete for these prizes arises from diffidence rather than indifference.

Since graduating in 1928 I have taken two pupils for a part of their vacation and each of these boys has gained one of the clinical prizes. Their success is doubtless largely due to the paucity of competitors, but I think it is mainly due to the fact that, acting on the advice given me during my own pupilage, I encouraged both my pupils to make frequent case notes. These notes I discussed with them from time to time and advised them as to the selection of records to be submitted for competition.

I take it that the N.V.M.A. desires to encourage the students' powers of observation and description and I imagine that many students are of opinion that the cases they meet with are too commonplace to record and that an idea prevails amongst many of them that only records of unusual cases will be considered.

With the exception of the record of the application of the Johnin test to a herd of Jersey cattle in Mr. Isherwood's group of cases, embellished by photo-micrographs of sections of the affected tissues kindly supplied by Major Dunkin, my pupils' recorded cases were of the most ordinary and everyday description, but I endeavoured to train them correctly to express their impressions and experiences.

Further, I take it that those students who spend their vacation in seeing practice—not a very large proportion, it is to be feared—would pay more attention to encouragement and training from the man in whose society their time is being passed than to admonitions from the principals of the colleges and I suggest that the appeal of the N.V.M.A. should be made to the practitioners rather than to the latter gentlemen, whose hold upon the students is, for the time being, relaxed.

I have always tried to impress upon my pupils the value of practice in describing their cases from the examination point of view during their student days and in later years for correspondence with their clients, whilst a well-kept case book is valuable for reference at all times. Personally, I have found my case-books most useful and have before me as I write a record and diagram of my first calving case, dated August 14th, 1891. This I treasure as a lesson in " how not to do it ! "

The student should be taught that there is a history to every case, however trivial, and taught to describe it in such a manner that the most unenlightened stockowner can follow his meaning.

This is, I take it, the aim of the N.V.M.A. in offering these very substantial prizes and it is up to the members of that Association to further the scheme rather than ask the Colleges to do so, more especially as it is a condition laid down that the cases recorded shall be those met with during vacations.

Faithfully yours,
David Eric Wilkinson.

Oakwood,
Chigwell,
Essex.
February 1st, 1931.

"A Specific Stimulus to the Respiratory Centre."

To the Editor of The Veterinary Record.

Sir,—As I have apparently caused some unnecessary feeling by publishing the article on a " Specific Stimulus to the Respiratory Centre " in the *Veterinary Record* of January 17th, 1931, may I be allowed space to explain matters.

It is to be understood that because Mr. F. C. Gillard was unaware that I had published the details of the cases concerned he can in no way be blamed for any of the statements which I penned. My only reason for including his name in the article was because I wished him to share any value there might be in recording the effects of lobelin. I wrote the paper in detail because I was so impressed with the value of lobelin that I wished others to try it, and to have some idea as to the dosage and effects. I certainly had no intention of apparently pointing the accusing finger of negligence at my former Principal, and, if I have done so, willingly apologise.

As I acted as anæsthetist at *both* cases I naturally take full responsibility for the results which followed; particularly when, in the case of the pomeranian, I administered a general anæsthetic against the wishes of Mr. Gillard. I did this because it appeared to me, who subsequently was to extract and did extract the teeth, that the case was one of sufficient severity to warrant the use of a general anæsthetic. Local anæsthesia was, I felt, too uncertain and not capable of eliminating the pain; thus again I take all responsibility.

It is well known that the most efficient and careful of surgeons may have cases of respiratory failure under general anæsthesia without any question of neglect, so that Mr. Gillard is quite free from any blame, and I again wish to express sincere regrets if I have caused any reflection at all upon his professional conduct.

As the dosage of lobelin for the dog was not known, one may, I hope, be forgiven for having injected an abnormal quantity under the peculiar circumstances which inevitably associate themselves with respiratory collapse.

Yours faithfully,
W. P. Blount.

31, Walbrook Road,
Derby.
February 2nd, 1931.